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Final Report

AMR DIGITAL TROPOSCATTER TEST RESULTS

Environmental Science Services Administration
Staff of ESSA/ITSA

TECHNICAL REPORT NO. RADC-TR-67-17
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Rome Air Development Center
Research and Technology Division
Air Force Systems Command
Griffiss Air Force Base, New York

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FOREWORD

This final technical report was prepared by the Institute for Telecommunications Sciences and Aeronomy of the Environmental Science Services Administration (ESSA/ITSA), Boulder, Colorado 80302 for the Rome Air Development Center under Contract AF 30(602)-3446, Project 6523, Task 652304. Secondary report number is 3446 04.

The report has been coordinated with each digital technique manufacturer upon the receipt of the draft and their comments have been included.

Reference is made to RADC-TR-65-427 which covers the results of the Sunde Tropo Channel Model used to predict error probabilities on this test. The Signal Processing Section (EMCRS) undertook the theoretical and mathematical analysis of the communication techniques tested.

RADC Project Engineer is Frank Chiffy (EMCTW-3).

This technical report has been reviewed and is approved.

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ABSTRACT

This report describes the work performed under Contract AF30(602)3446. Its purpose was to evaluate the performance of three types of contractor furnished digital modulation equipment, using simultaneous data from an FM-FDM system as a standard.

The tests covering a period from November 1964 through May 1965 were conducted on an over-water path between East Island, Puerto Rico and Grand Turk Island, BWI.

The standard FM-FDM system technique referenced was the Radio Set AN/MRC-98 a transportable tropospheric scatter radio set operating in the 755-985 MHz range with an output r.f. power capability of 10 K.W.

The digital techniques were variations of Pulse Code Modulation, Pulse Position Modulation, and Delta Modulation schemes.

A description of test instrumentation configurations and data collection procedures is presented. Test results are discussed and presented in tabular and graphical form.

EVALUATION

This report confirms the need to run 200 and 100 mile tropo tests that are presently being conducted in upstate New York. The contractor experienced difficulties during his data analysis and some data was removed for such reasons as, power failures, noisy tapes, errors in time code and for conditions during which the data was outside the range of calibration.

A limited amount of looping and quad-diversity data has not been reduced by ESSA due to a lack of time but is available on magnetic tape for reduction should the need arise.

This report was coordinated with each technique manufacturer upon receipt of the rough draft and their comments have been included.

Frank P. Chiffy

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Project Engineer
EMCTW-3

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I. Introduction

Tests were conducted over an over-water path between East Island, Puerto Rico, and Grand Turk Island in order to obtain data for the purpose of evaluating the performance of three types of contractor furnished digital modulation equipment, using simultaneous data from an FM-FDM system as a control. The tests were divided into three time periods, one for each contractor, covering a period from November 25, 1964 through May 13, 1965. The purpose of this report is to describe the tests and to present the data obtained from them.

Some of the data were recorded on 14 channel magnetic tape for later reduction (see Section IV). An attempt was made to record simultaneously for both systems as many of the following parameters as possible:

(1) time code

(2) carrier levels (possibility of four receivers on the digital system and four on FDM when quad diversity used)

(3) digital data, out-of-sync information

(4) digital data, errors

(5) combined signal levels (when using diversity)

(6) signal-to-noise ratio (see Section IV. 2)

(7) idle channel noise.

Priority was assigned to parameters (1), (2) and (4).

Voice data were recorded on a separate magnetic tape recorder.

Because of the wide variety of conditions encountered and the large number of variations of the type of data obtained, it is difficult to derive definite conclusions from the data. However, the information from these tests should be valuable when evaluating the results from later tests. Two additional paths, (1) an over-land path approximately 200 miles long between

"erona, N.Y. and Model City, N.Y. and (2) an over-land path between Verona, N.Y. and a point approximately 100 miles distant along the Verona-Model City path, are proposed for these later tests.

II. Path Description

The path extends over water from Grand Turk Island to East Island, Puerto Rico as shown in figure 1. The antennas are located at 21°, 25', 32.25" north by 71°, 8', 43.00" west and 18°, 28', 34.93" north by 66°, 10', 48" west. The distance d indicated in the lower portion of figure 1 is 613.7 km. The angle θ (see figure 1) for a surface refractivity value, $N_s = 347$, corresponding to the average value for February is .0596 radians, and for $N_s = 380$, corresponding to the average for August. $\theta = .0551$ radians, where the bending was calculated using Bean and Thayer [1959]. The scattering volume lies above approximately 9 km above sea level. Two 18.3 meter parabolic section reflectors fed by offset horns are located at each end of the path. The heights of the center of the reflectors above sea level are 14 meters at Grand Turk and 25.9 meters at East Island. The antennas at East Island are shown in figure 2, and one feed horn with a section of wave guide are shown in figure 3.

The AN/MRC-98 communications system consists basically of two (2) transmitters, four (4) receivers with necessary combiners for dual or quadruple diversity, a twenty-four (24) channel multiplex-demultiplex system, a mobile diesel generator, and test equipment, waveguide, etc., necessary for independent operation as a communications terminal. One complete AN/MRC-98 system was installed at each end of the path. In addition, a third system was divided between the terminals to provide three (3) transmitters and six (6) receivers at each end of the path. This provides the combinations of equipment configurations shown in figure 4. Generally throughout the tests, the FM-FDM system was operated in the dual diversity mode using horizontal polarization.

The path area is near the tropical hurricane region of the Eastern Carribean. The climate is tropical marine, slightly modified by insular influence when land breezes blow. A preliminary examination of seven years of radiosonde data taken at San Juan, Puerto Rico, was made to determine, to some extent, the radio climatology. At the San Juan end, radio ducts are believed to exist about 25% of the time. However, two years of radio data, [RCA, 1964] do not contain field strengths as large as would be expected if the ducts extended the length of the path.

Ducting gradients were found to exist 35% of the time for the winter months of December through February, 28% of the time for the March-April-May period, 20% of the time for the summer months of June through August, and 19% for the autumn period of September through November. Fifty (50) percent of these ducting layers showed a range from 157-200 N units/kilometer, decreasing to a 0.6% occurrence for a gradient of 588 N units/kilometer. Twenty-three (23) percent of the total number of ducting gradients were surface ducts and about twice as many of these occurred at 1500 GCT (1000 local time) as were found to occur at 0300 GCT (2200 of the previous day).

Predictions of transmission loss [Rice, et. al., 1965] were made and compared with the available data [RCA, 1964], using the maritime temperate overseas classification to obtain the distributions shown in figures 5, 6, 7, 8. Pertinent values of the parameters used for these calculations are: Transmitter power, $P_t = 7.5$ kw, line losses, .5 dB, antenna gain, $G_t = G_r = 41$ dB, and frequencies, $f = 779.5$ MHz and $f = 879.5$ MHz.

III. Test Facility Equipment Descriptions

The basic RF system used in these tests is discussed briefly in Section II, Path Description. These equipments were used in various combinations as required by the test being performed. For example, it was

possible to operate both the FM-FDM system and a digital modulation system dual diversity by transmitting both from one end of the path and receiving at the other. When quad diversity was used, the FM-FDM was transmitted from one end of the path and the digital modulation was transmitted from the other. All receiving was then done at the opposite end of the path.

The exciter and power amplifier of the transmitters and the RF section of the receivers were used with each of the digital modulation systems. Each contractor was required to properly interface their digital modulation system to the AN/MRC-98 transmitting and receiving systems. The point in the system for making the interface connections was at the discretion of the contractor. Details of the interface connections are discussed in the description of each digital modulation system.

Each system was basically a 24 channel communications system. During most of the tests all systems were fully loaded with four channels used for data and the other 20 channels noise loaded. Periods when less than 24 channels were loaded are noted in Section VII. The methods of noise loading each system are discussed in the descriptions of each system.

III. 1. FM-FDM Equipment Description

As was mentioned in the introduction, the purpose of this test was to obtain data to evaluate the performance of three types of contractor furnished digital modulation equipment using simultaneous data from an FM-FDM system as a control. The FM-FDM system used was an AN/MRC-98 tropospheric scatter communications system. This is a diversity system with flexibility so that it can be operated using a single transmitter and a single receiver (no diversity); dual diversity with one transmitter, spaced receiving antennas and two receivers; or quad diversity using two transmitters on spaced antennas, spaced receiving antennas and four receivers. The combiner is a post detection combiner.

The AN/MRC-98 is a 24 channel system. At the transmitter the 24 channels are combined into a baseband by a frequency division multiplexer. The baseband is then used to frequency modulate the RF carrier in the exciter stage of the transmitter. The multiplexer has sufficient output to drive two exciters for quad diversity operation. At the receiving end, the baseband output of the combiner is separated by the demultiplexer system into the 24 individual channels.

For these tests four channels were used for data measurement and the other 20 channels were noise loaded. The purpose of the noise loading was to simulate a fully loaded system. The noise loading was accomplished by driving the baseband input of an FDM demultiplexer with a random noise generator. The output of these individual channels were connected into the channels of the FDM multiplexer which were to be noise loaded. This method of loading provides a noise source to each channel which is statistically independent of the noise in the other channels.

III. 2. PCM Equipment Description

Figures 9 and 10 are block diagrams of the interface equipment used between the PCM equipment and the AN/MRC-98 system for transmitting and receiving purposes respectively. The same equipment using different plug-in band shaping networks is used in the transmission of either PCM or FDM information.

The transmitter interface equipment consists of a baseband amplifier and a video shaping network followed by a 70 MHz modulator and an AFC. The baseband amplifier, and the modulator are broadband and are capable of multi-channel operation. The AFC unit is used to stabilize the modulator. The modulator output has sufficient output level to drive either one or two AN/MRC-98 exciters. Thus, both dual diversity and quadruple diversity operations were possible. Video shaping for 12/24

channel FDM or 12/24 channel PCM was achieved by plug-in networks per CCIR recommendations for FDM operation and low pass filters approximating a Gaussian response for PCM operation.

The receiver interface equipment was connected to the AN/MRC-98 receiver at the 70 MHz IF amplifier ahead of the limiter. Thus, no limiting or AGC features of the AN/MRC-98 were used with the PCM equipment. The interface equipment consisted of a five pole Gaussian shaped filter of approximately 2 MHz bandwidth for 24 channel operation and 900 kHz bandwidth for 12 channel operation followed by a heterodyne mixer and IF amplifier-filter configuration and an equal gain predetection combiner. The second local oscillator was voltage controlled to provide coherent combining. The IF filter appeared as a single tuned circuit with a bandwidth of approximately 4 MHz for 24 channel operation. The overall filter configuration preceding the combiner was equivalent to a six pole Gaussian shaped filter with a bandwidth of 1.77 MHz for 24 channel operation and

800 kHz for 12 channel operation. An AGC voltage, with a time constant of about 1 millisecond, was derived from the combined output and was fed back to each IF amplifier. The combiners were designed to operate in either dual or quadruple diversity modes by proper connections. In either mode the combiner compares the phase of the IF carrier at its input with the phase of the combined output. The error voltage, which is proportional to the phase difference, is used to adjust the phase of the VCO in that channel and bring the input signal into coherence with the combined output. The time constant of the loop was approximately 30 microseconds. The linear demodulator and the baseband amplifier are broadband to accommodate multi-channel PCM or FDM information. The receiver band shaping is achieved by both predetection and post-detection filtering. Post-detection band shaping for the FDM case consists of de-emphasis networks

designed to produce the inverse of the corresponding pre-emphasis shaping. When PCM type information is to be transmitted, these networks are replaced by filters producing approximately Gaussian attenuation characteristics.

The following is a functional description of the multiplexer equipment based on the PCM multiplexer block diagram of Figure 11.

Each input channel has two parts, the voice input and signalling or address input. The voice input is amplified by the input amplifier and sampled at an 8 kHz rate by the sample switch. During one 125 μ sec. frame, the channels are each sampled once for three bit lengths. The composite of all these samples appears on the PAM bus as a pulse amplitude modulated signal. The signalling input, via an interface buffer, is sampled by a sample switch in the same manner as the voice.

The timing of the internal functions of the multiplexer is determined by the 1,352 kHz oscillator when 12 to 24 voice channels are used. When 12 voice channels or less are used, the timing is derived from the 676 kHz oscillator. The 12/24 line switching is a manual operation. The clock pulse generator provides the proper pulse width and fan-out for the 1,352/676 kHz clock. The time counter changes state once for each clock pulse and goes through one cycle of seven states for each channel in the frame. A diagram of the PCM format is given in figure 12. The timing decoder produces one pulse for each state of the time counter. These timing pulses are distributed as needed to other parts of the equipment.

The channel counter changes state once for every cycle of the time counter and goes through a cycle of 12 or 24 states (as determined by the 12/24 line switch) for each frame. Each state or code of the channel counter represents a channel. These codes are detected and sampled by the channel selector which sends channel select signals to the sample switches, except for the channel "0" select signal. It is used to activate

the frame synchronization generator. The frame synchronization is a single pulse which assures the "1" state for one frame and then the "0" state for the next frame, etc.

The compressor gain decreases as signal amplitude increases, thereby decreasing the vulnerability to noise. The sample and hold circuit samples the center of each PAM pulse with a one bit wide pulse (1.28/0.74 μ s) thus reducing noise and cross talk. The amplitude sample is held for 5.18 μ sec. (or 10.36 μ sec. for 12 line operation) while it is being converted to a six bit binary code.

The coder control programs the analog-to-digital conversion. First, it sends code 32 (which corresponds to the middle of the analog signal swing) in binary to the digital to analog converter and the resulting trial voltage is compared with the signal voltage by the comparator. Second, the trial code (32) is increased or decreased by 16, depending respectively on whether the signal voltage was higher or lower than the trial voltage, and then another comparison is made. Third, the above is repeated, except that eight is added or subtracted from the trial code. On the fourth time, four is used to increment the trial code. Fifth, two is used, and sixth, one is used. The six high/low decisions made in this way are equivalent to a six bit binary code representing the amplitude of the PAM pulse.

The data format assembler produces the final PCM output. The signalling or addressing is added as a seventh bit to the six bit serial code produced by the coder control. The alternating 1, 0 bit frame synchronization produced by the frame synchronization generator is added to the 24 (or 12) voice channels as though it had originated from a 25th (or 13th) channel.

PCM Demultiplexer: The following is a functional description of the PCM demultiplexer equipment based on the block diagram given in figure 13. The PCM data enters the demultiplexer through a slicer which includes a differential amplifier and internal DC restorer. The slicer

output goes to an extremely high or low value depending on whether the PCM input is above or below a central threshold level. The phase difference integrator integrates the difference between the phase of the slicer output and the phase of the voltage controlled oscillator to adjust the voltage controlling the frequency of the VCO. This frequency-tracking system is arranged to produce a synchronous clock centered halfway between the transitions of the slicer output. The 12/24 line switching is used to accommodate either 1.352 MHz or 676 kHz bit rate. The clock pulse generator provides the proper pulse shape to advance the time counter. The time counter changes state once for every bit and goes through a cycle of seven states for each channel. The timing decoder produces one pulse for each state of the time counter, and these timing pulses are distributed to other parts of the equipment as required.

The input shift register converts the serial binary output of the slicer to a sequence of seven bit, parallel codes, one for each channel. Each six bit code (excluding the signaling bit) is converted by the digital to analog converter to an amplitude modulated pulse (PAM). The expander restores the PAM signal, which had been compressed by the multiplexer, to its original form. The PAM bus connects the central equipment to the individual channel.

The channel counter changes state once for every seven bits going through a cycle of 12 or 24 states (depending on the 12/24 line switching) during each frame. The channel selector detects each state of the channel counter, selecting the 24 (or 12) sample and hold circuits in sequence.

During frame synchronization, no sample-and-hold circuits are selected, and the frame synchronization control examines the sync waveform to see whether or not the expected frame sync waveform has arrived at the expected time. If the received waveform deviates from the expected waveform beyond a particular limit, the frame sync control will halt the time counter until the proper sync waveform arrives.

Each sample and hold circuit samples the amplitude of the center of the selected PAM pulse and holds the amplitude until the next sample (in the next frame). The low pass filter smooths out the step-like waveform coming from the sample and hold circuit. The output amplifier drives a 600 ohm telephone line.

The input shift register puts the signaling bit of each seven bit code on the signaling bus. The signaling bit is gated into the appropriate signaling storage device by the channel selector. The signaling storage holds the signaling output constant from one frame to the next.

III. 3. Martin PPM Equipment Description

The essential features of the system supplied by Martin Company are the use of fourth order frequency diversity, and the combination of frequency and time division multiplexing as an integral portion of the equipment.

The digital modulation technique has a bit length of eight microseconds. This is subdivided into six intervals of 1.33 microseconds each. RF pulses, each at a different frequency are transmitted in four of the six sub-intervals. The spacing between the individual frequencies is 2 MHz making the overall bandwidth 8 MHz. From the standpoint of the receiver, which is programmed when to expect the signal on each frequency, a permutation in the order of transmitting the four frequencies can be readily recognized and made the basis for multiplexing several channels on the same basic bandwidth.

The system is basically a 24 channel combination TDM/FDM multiplex system which employs PPM of the quantized data. Only four of the channels were completely implemented. Twenty channels used simulated data during the experiments. A block diagram of the transmitting portion of this equipment is given in figure 14. A bandpass filter with a bandwidth

of 150 to 3500 Hz and a pre-emphasis network of 6 dB/octave which can be optionally switched in or out is supplied at the input to each of the four fully-instrumented voice channels.

The audio AGC operates on the peak of the audio input signal. It has characteristics of fast pull-in and slow drop-out. The pull-in time is approximately equal to 1/2 cycle of the audio present and the drop out time is approximately ten seconds. The squelch circuit has approximately the same pull-in time with a drop-out time of five seconds.

In the compressor an instantaneous compression is obtained using several sections of resistively loaded diodes to achieve an approximate logarithmic response.

A diagram showing the processing that takes place in the voice quantizer is shown in figure 15. The analog waveform is sampled once every 128 μ sec. The time between such samples is divided into sixteen 8 μ s frames. The instantaneous amplitude of the voice at the time of sampling is translated into a short pulse whose position in this 128 μ s period is proportional to the amplitude. This pulse position is continuous and may begin at any time during the sample period. The start of the pulse will fall within one of 16 discrete time frames in the sample period. An 8 μ s pulse will then be transmitted in this frame. The result may be considered equivalent to a 16 level quantized PPM system. To make the most efficient use of this relatively small number of amplitude levels, the analog voice signal is processed in the compressor and AGC circuits prior to sampling to make all amplitudes within a certain dynamic range nearly equal.

To simulate the output of the other 20 channels there are 20 asymmetric, free-running multivibrators operating close to but not exactly at 7.8125 kHz. All are maintained to within a 5% tolerance. Each multivibrator puts out a 3 μs pulse at the 7.8125 kHz rate. Each of the multivibrator outputs is quantized into one of the discrete 16 intervals by a

separate quantizer. These noise quantizers are similar to the voice quantizers. The noise channel programs were keyed on at near random quantum levels at rates of one noise program per two sample periods. This rate made each noise channel approximate a 50% duty factor phone channel.

The data system generator was used to transmit data by "Time Shift Keying" (TSK) between Frames 8 and 9 on Channel 1. Frame 8 represented a one and Frame 9 a zero. Data at 2604 bps was sent using TSK three times redundant.

The synchronization pulse generator sends synchronization once per sample period during Frame 1. The synchronization program was also used for an order wire having 13 levels of QPPM between Frames 3 and 15.

The encoder patch panel and program selector serve the function of ensuring each channel has proper addressing. Each of the 24 channels has its own address which comes from a 4 x 6 matrix (four frequencies and six 1.33 μ sec. time slots). Of these 24, some are exclusive (no overlap) in others 2 frequencies or more overlap in a time slot.

The frequency time program used in these tests are given in figure 16. Figure 17 is a diagram in schematic form showing how the programs are selected for transmission over the four frequencies. The program selector selects the frequencies in accordance with the address program and in turn furnishes the gating function which reads the appropriate frequency. The oscillators furnishing the carrier frequencies to the gating circuits are separated by 2 MHz and cover the band between 67 MHz and 73 MHz as shown in figure 14.

The outputs of the four gated oscillators are summed together in a resistive network to assure linearity and low intermodulation. The output of this coupling network is then matched to the AN/MRC-98 exciter.

The Martin receiving equipment is matched to the AN/MRC-98 receiver at the 70 MHz IF. A block diagram of the Martin PPM equipment is given in figure 18. The four frequencies each have separate IF amplifiers with bandwidths of about 750 kHz measured at the 1 dB point.

The AGC, which is fed to the individual IF amplifiers, is controlled by the median signal level from the linear detectors of each of the channels. The time constant of the AGC is on the order of seconds.

The synchronization summer delays the F_1T_1, F_2T_2, F_3T_3 information such that it will be time coincident with F_4T_4. The output is used to synchronize the receiver clock. The synchronization time constant is on the order of seconds.

The output of each of the four intermediate frequency amplifiers is detected by a square-law detector. Figure 19 is a schematic presentation of the gate matrix and decoder patch panel. The squared signal is then synchronously integrated at the time it is expected. This yields a d-c output proportional to the energy of signal plus noise. The integrator outputs are held for the full pulse period (to the end of the eight microsecond frame), and then summed to produce an equal-gain combined output. Each of the 16 frames in a sample period is similarly examined by the detector. At the end of the sample period the frame having the highest d-c level is chosen as having the greatest energy present. The frame is then passed to the balance of the demodulator. A descriptive diagram of the integrator and demodulator process is given in figure 20.

The expander, figure 19, performs the opposite function of the compressor except $\mu = 10$ instead of $\mu = 50$ as in the encoder, figure 14. This reduction of μ aids in the reduction of quantizing noise.

The data TSK demodulates the data from the order wire channel. The data rate is 1/3 the frame rate. Therefore, there is a two out of three majority decision requirement that must be satisfied before the bit is accepted. An internally generated pattern can be used to compare with the incoming data to establish the number of errors.

III. 4. Motorola Deltaplex Terminal Equipment

The delta modulation equipment furnished by Motorola is a 25 channel system which employs a combination of TDM/FDM. Only four data information channels were implemented completely. These channels were 5, 10, 15, and 20. Channel 25 was used for frame synchronization and order wire purposes. The remaining 20 channels consisted of dummy TDM equipment and were fed with a pseudo-random pattern generator. A multiplex transmitter is shown in figure 21.

The four data information channels have bandpass filters which are required for filtering the voice signals before they are applied to the delta modulator. The high frequency cutoff of 3.5 kHz was selected to minimize harmonics of the voice signal that could beat with the sampling frequency and produce audio interference. In addition the high frequency cut-off eliminates false frame synchronization. Two inputs into the delta modulator are provided - one for logically generated audio inputs and one for digital data. The audio input is to the differential amplifier of the delta modulator. For digital data, the input is fed directly into the sampling section of the delta modulator. The four delta modulators are sequentially sampled every 26 μ sec. with a 1.04 μ sec. pulse produced by the clocking mechanism. Figure 22 shows a single channel input and a frequency-time diagram which will further clarify the input to the channels as well as the sequential sampling.

The frame synchronization and order wire channel provides two functions each using one-half the channel. The frame syncronization pattern is a repetitive series of a mark followed by three spaces, or 1 0 0 0 1 0 0 0 1 0 0 0, etc. This pattern is directly derived

from the system clock, and has a low probability of being generated by data signals. The frame length is 26 μ sec. The order wire signal is delta modulated at a 19.2 kHz sampling rate, one-half the sampling rate of the 24 data transmission channels.

The time division multiplexing groups the 25 channels in five groups of five channels each. To provide maximum spacing within a group, the channels are grouped with constituent channels five sampling periods of 5.2 μ sec. apart.

Since there are five time division multiplexed groups, there are also five FSK frequency pairs. Each time division multiplexed group was used to key one FSK frequency pair. If a "1" (mark) is to be transmitted, one of the frequencies is keyed while the other is constrained to the off state. If a "0" (space) is to be transmitted, the other frequency in the pair is keyed on while the prior one in the pair is constrained to the off position. The ten total frequencies are so chosen that no adjacent time slot has an adjacent frequency element. Each pair is also arranged so that the mark and space frequencies for any time slot are five frequency elements apart. In figure 22, the arrangement of the frequency pairs about the 70 megacycle center frequency is given.

The outputs of the FDM gates consist of ten lines, each line having one 1.04 μ sec. pulse at one of two frequencies every 5.2 μ sec. The outputs of the FDM gates are linearly combined and the output is a succession of pulses, one every 1.04 μ sec. at different frequencies from 65.68 to 74.32 MHz spaced 0.96 MHz apart. The output of the linear combiner is fed to the transmitter exciter. There is no pulse shaping done in the Motorola equipment. The power spectrum at the output of the Motorola equipment may be considered a rectangular pulse.

The Motorola receiving equipment was interfaced with the AN/MRC-98 receiving equipment after the AGC portion, but before the limiting action of the AN/MRC-98 receiver. RADC furnished an IF

amplifier panel with a bandwidth of 10 MHz to accomplish the necessary equipment interface. As shown in figure 23 the two receiver IF sections are fed from separate receivers for diversity operation. The output from one receiver is split into two paths, one path to detect the mark signal (f_3) and the other to detect the space signal (f_8). The filter provided for each path or channel is a triple section synchronously tuned filter. The overall bandwidth of the filter is approximately 300 kHz.

The outputs of the filters are differentially envelope detected and added to form a bipolar analog pulse train. The integration time at the output of the envelope detectors was about 1 microsecond.

The transmitted signal is processed in a second receiver IF strip identically as described above. The analog pulse trains are passed through individual delay lines to equalize the differential delay between the two pulse trains due to the possibility that the diversity antennas may not be precisely aimed at the same common volume. The time equalized pulse trains are then added in a linear adder to form the composite bit stream. This 192 kHz signal is used to obtain bit synchronization. The clock output is then routed to a divide-by-five commutator. The TDM wave train from the diversity combiner is fed to a threshold amplifier. This amplifier converts the analog bipolar input to a squared binary output. The threshold amplifier is reset prior to each sample by the recovered bit clock. The binary output of the threshold amplifier is in turn sampled by each of the five separate outputs of the commutator to separate the serial train into five parallel digital outputs, each output being 26 microseconds long.

Frame sync is achieved by looking for the 9.6 kHz tone applied to the sync channel. A 9.6 kHz bandpass filter is located at the output of the five digital channel outputs. The energy from the filter having frame sync is used to inhibit the sequential sampling until receiver frame sync is obtained. Normally less than 1 milliseconds are required to obtain frame sync.

The digital output of the channel is fed directly to the delta demodulator. The delta demodulator consists of an integrator circuit with equal charge and discharge time constants. The output is then filtered to obtain 0.3 to 3.5 kHz audio bandwidth.

IV. Data Sources and Recording Techniques

IV. 1. Carrier Level

The received carrier levels were recorded on magnetic tape during all test periods. The method of recording the carrier levels varied due to the different types of modulation used. For the FM-FDM system an LEL Model 5264 logarithmic amplifier-detector was connected to the AN/MRC-98 receiver at a point in the 70 MHz IF amplifier ahead of the limiter and the feedback point for the AGC. The detector output of the Model 5264 was recorded on magnetic tape using the FM recording mode. All received carrier levels for the FM-FDM system were recorded, i.e., two for dual diversity and four for quad diversity. The carrier level recording system was calibrated by connecting a signal generator to the antenna input connector of the AN/MRC-98 receiver and reading the output in terms of the frequency of the voltage controlled oscillator of the magnetic tape recording system. This method calibrates all components of the carrier level recording system simultaneously. The system was normally calibrated from -70 dBm to - 115 dBm.

The LEL Model 5264 logarithmic amplifier-detector was also used to record the received carrier levels for the PCM digital modulation system. The connection to the AN/MRC-98 receiver and the recording and calibration techniques were the same as those used for the FM-FDM system.

During the testing of the Martin Company PPM digital modulation system several methods for recording the received carrier levels were tried. As was discussed in Section III. 3. the RF carrier consisted of pulses of RF energy at four frequencies spaced 2 MHz apart and contained in a bandwidth of 8 MHz. A receiving system with an 8 MHz bandwidth was not available.

The receiving system had four IF amplifiers, one for each of the frequencies transmitted. Each IF amplifier had an AGC circuit that was controlled by the median signal level from the linear detector of that channel. However, the time constant of the AGC was on the order of seconds. The time constant was so long that the AGC did not follow the fast fading of the received carrier level. Thus, this recorded AGC is used to determine the magnitude of the received carrier level, but can not be used to study the fading characteristics of the carrier.

During the course of the PPM tests three different methods of calibrating the AGC voltages were used. These were:

1. The AN/MRC-98 exciter or power amplifier through a frequency converter to the AN/MRC-98 receiver input at a pulse rate of 7812.5 pps.
2. The AN/MRC-98 exciter or power amplifier through a frequency converter to the AN/MRC-98 receiver input at a pulse rate of 125 K pps.
3. A signal generator direct into the AN/MRC-98 receiver input at a pulse rate of 7812.5 pps or 125 K pps.

A comparison plot of the three methods of calibration is shown in figure 25. In this graph all curves have been normalized to curve number 2. The wide variation between the various methods has not been satisfactorily explained. The periods when each method was used are noted in Section VIII of this report.

During a portion of the test period on the PPM system a CW signal at 70.0 MHz was inserted with the four gated oscillators, discussed in Section III. 3., into the AN/MRC-98 modulator. The level of the CW signal was 10 dB below the peak power of the gated oscillators. At the receiving end a Communications Electronics, Inc. Model 960 receiver was connected to the AN/MRC-98 receiver at a point in the IF amplifier ahead of the feedback point for the AGC and the limiter. The Model 960 was tuned to 70.0 MHz and its bandwidth was set to 200 kHz. This system was unsatisfactory due to frequency drifts of the system.

During the tests of the Motorola deltaplex digital modulation system the received carrier level was recorded using the LEL Model logarithmic amplifier-detector discussed with the FM-FDM system. Since the LEL amplifier-detector has a bandwidth of 2 MHz, its bandwidth will include only frequencies f_5 and f_6 (see Section III. 4.). For these tests the information was carried on the frequency pair f_3 and f_8, all other frequencies being driven by a psuedo-random pattern. Thus, f_5 and f_6 should contain one-fifth of the spectrum power, or 7 dB below full power. This system was calibrated using a CW signal generator with its output power level set to -7 dBm. The calibration was then performed using an external attenuator.

IV. 2. Signal-to-Noise

The Philco SNM-2 Signal-to-Noise Meter measures the ratio, in dB, of the signal power plus noise power to noise power in a voice channel of a multiplexed communications system. The signal used is a 2075 Hz tone from an audio signal generator inserted into a voice channel at the transmitting end of the path. The SNM-2 accepts the audio tone from the receiver demultiplex and passes it through a voice band filter. The 2075 Hz signal is then split into two components, noise and signal plus noise,

by a band rejection filter. The two components are put into diode logarithmic shaping networks and their difference taken. This process gives the ratio of signal plus noise to noise in decibels. For large ratios this will approach the true signal to noise ratio. The output of the signal-to-noise meter was a direct reading on a meter on the instrument and a varying d-c voltage for recording on magnetic tape. This system was calibrated using an audio oscillator and a noise source over a range from 15 to 60 dB.

IV. 3. Digital Data

Two sources were used for digital data transmission. The Frederick Electronics Corporation Data Transmission Test Set, Model 600, is a pseudo-random digital test pattern generator consisting of a transmitter and a receiver. The generator produces a repetitive test pattern, 2047 bits in length, at any rate from 10 to 100,000 bits per second. The receiver accepts the transmitted test pattern and synchronizes a locally generated perfect pattern to it. The two patterns are compared and errors in the received pattern are indicated by a voltage pulse output. The error pulses are widened from 2 or 3 microseconds to 200 microseconds by one-shot multivibrators and directly recorded onto magnetic tape. The error pulses are also counted in a Hewlett-Packard 524/560A printing counter. The number of accumulated errors is printed out every minute onto paper tape. The one minute print commands are given by a voltage pulse from an Astrodata Time Code Generator, Model 6140, used for time coding the magnetic tape recordings.

The Model 600 contains a mechanical counter capable of counting errors at speeds up to 20 per second. As errors occur they are stored in a 1520 bit capacity high speed buffer counter. The errors are then read into the mechanical counter at a 20 per second rate. Whenever the capacity of the high speed counter is exceeded a visual and audible out-

of-sync alarm appears. A voltage derived from the sync alarm light is FM recorded on magnetic tape for later use in evaluating the recorded error data.

The Frederick re-syncs on any string of 16 consecutive correct bits and consequently, if errors are occurring in the data at a rate greater than one in sixteen, the Frederick may not re-sync. During periods when the Frederick is giving an out-of-sync indication, it may indicate error rates up to 100% even though the actual error rate is smaller. Thus, the sync-outage as recorded must be used to determine the bounds for the actual error rates.

The AN/GSC-4 Data Modem Modulator/Demodulator, built by Collins Radio Corp. is a system designed for sending digital information over ordinary voice bandwidth channels of radio, wire, microwave, etc. communication circuits. The AN/GSC-4 accepts binary data at 600, 1200, 2400, 3600, 4800, or 5400 bits per second rates. Two or three data channels are encoded by phase shift modulation onto tones spaced 440 Hz apart in the frequency range 935 to 3195 Hz and transmitted through an audio channel. The digital data is detected from the received audio tones at the receiving end by another AN/GSC-4 Modem.

The AN/GSC-4 contains an Integral Test Facility. This consists of a 16 bit test pattern that is transmitted and compared to a locally generated perfect pattern in the receiving Modem. Errors are indicated visually and by a voltage pulse output. The recording of error pulses is the same as explained above for the Frederick. The receiving Modem resets synchronization between the transmitted and locally generated test patterns every minute in case of loss of sync.

The Frederick pattern was usually fed directly into a data channel for the digital modulation system but was always fed through the AN/GSC-4 into a voice channel, for the FM-FDM system.

IV. 4. Idle Channel Noise

The noise from an idle channel of each system, FM-FDM and the digital modulation system under test was recorded on magnetic tape. At the transmitter the channel that was to be used for the noise test was terminated with a 600 ohm resistor. At the receiving end the noise was amplified and recorded on the magnetic tape in a direct record mode.

For calibration purposes, it was assumed that the maximum noise would appear in the idle channel when there was no RF signal into the receivers. The peak-to-peak output of an audio oscillator was matched approximately to the peak-to-peak amplitude of this maximum noise. The audio oscillator output was then used to calibrate the direct recorded channel on the magnetic tape. The output of the audio oscillator was then stepped down in 3 dB steps as the signal was recorded on magnetic tape. Calibration in this manner provided good recording of the noise peaks, but was too compressed to provide a good recording of the average noise.

IV. 5. Teletype

During much of the test period a teletype message was sent over one voice channel of each system, i.e., FM-FDM and digital modulation system being tested. A standard fox teletype test message was used as a data input. These data were generated by a T eletype Corporation TS-2 Fox Generator which produces a 1275 Hz tone that is frequency shift keyed ±42.5 Hz. This tone was inserted into a voice channel of the multiplexer. At the other end of the path the message was taken from the system demultiplexer, fed through a teletype tone converter and printed out on a Teletype Corporation M-28 Printer.

IV. 6. Voice

Voice tests were made over the FM-FDM and various digital modulations systems using prerecorded tapes furnished by the U.S. Air Force Electronic Systems Division, Decision Sciences Laboratory, L. G. Hanscom Field.

The articulation test employed was the Modified Rhyme Test, [House, et. al, 1963; Williams, Hecker and Kryter, 1964]. Twelve (12) word lists - fifty (50) words per list - were recorded in an anechoic chamber on an Ampex Model 602 Recorder by six trained male talkers. The words were spoken one every 2-1/2 seconds with pauses at the end of each 50 word list. Thus the voice tape was approximately 35 minutes in length. This tape was played back over an Ampex 602 Recorder and transmitted over the path through a voice channel of both systems under test. The received voice from both systems under test was recorded on the two tracks of the Ampex 602 recorders for later analysis by ESD.

The voice tapes also contained special recorded signals used by the Speech Communication Index Meter (SCIM) discussed in Section V. 6. of this report.

V. Data Reduction Techniques

The data recorded on magnetic tape, as described in Section IV, above, were reduced in the laboratory. The following paragraphs describe briefly the data reduction techniques employed in reducing the data.

V. 1. Cumulative Amplitude Distribution

The cumulative amplitude distribution analysis is performed by a system shown in figure 26. The data are played back from the magnetic

tape at a tape speed of 60 ips (25 times the recording speed). The time track is played into the Time Code Reader and Control unit and is used to select the time periods to be analyzed.

The Distribution Analysis System (shown within the dashed line on figure 26) samples the data 20,000 times per second and compares the amplitude of each sample to ten calibrated signal reference levels. The Level Accumulators accumulate one count each time its associated signal reference level is exceeded by a sample. The Reference Accumulator registers a count for each possible sample within the time period selected. At the end of the time period all accumulators are printed out. From this one can determine percent of time each signal reference level is exceeded.

V. 2. Five Minute Medians

The carrier levels recorded on the magnetic tape were analyzed to determine the median of successive five minute periods. This analysis was performed using techniques the same as those used to determine the cumulative amplitude distribution. However, for the five minute periods all that was desired was the median, no information was required in the small percentage regions of the signal statistics.

To perform this analysis the ten Amplitude Comparators (figure 26) were divided into two groups of five and a separate Sampler used as the input of each group of five comparators. With this arrangement a five point cumulative amplitude distribution was run for two carrier levels simultaneously. The medians for the five minute periods were determined from these cumulative amplitude distributions.

V. 3. Digital Data Error Counting

The digital data errors (Frederick and GSC-4) were recorded on magnetic tape in a direct record mode as described in Section IV. 3. of

this report. The maximum error pulse repetition rate was near the high frequency limit of the direct record system for the tape speed of 2.4 inches per second which was used for data recording. As a result the pulse shape coming directly from the tape was very poor.

To properly recover the digital error data from the magnetic tape, the data from the direct playback amplifier was passed through a band pass filter and a pulse shaping circuit (see figure 27). The shaped pulses were counted by an electronic counter. Each decade of the counter had a staircase output. The first four decade outputs were recorded on separate channels of a strip chart recorder. Also recorded on the strip chart recorder were the recorded time from the magnetic tape and one related carrier level record (i.e., one FM-FDM carrier level when counting errors from the FM-FDM system, etc.). Thus, by referring to the time track it was possible to determine the number of errors made in any specific time period. Errors were counted continuously for each recording run and scaled to determine the number of errors in successive five minute time blocks.

As discussed in Section IV. 3. of this report, when the Frederick Model 600 receiver is out of sync the error information recorded on magnetic tape is not a true representation of the digital errors. The out-of-sync indication which was recorded on one channel of the magnetic tape was used to disable the error counting during out-of-sync periods. This was done by summing an out-of-sync voltage into the input of the pulse shaper to shift the error pulses out of the range of the pulse shaper.

However, total exclusion of errors during the out-of-sync periods does not give a true indication of the total errors committed either. The reason for the system being out-of-sync may be a higher error rate than the system can handle. Thus errors were counted including out-of-sync periods and excluding them as discussed above. These effects are discussed further in Section VIII. 1.

V. 4. Cumulative Amplitude Distribution of Two "Combined" Carrier Levels

The purpose of this analysis system was to determine the percent of time both received carrier levels of a diversity system were below given levels. The system used is shown in the block diagram of figure 28. The received carrier level data, which were recorded on magnetic tape, were played back through No. 1 and No. 2 data discriminators. The discriminators were adjusted to provide equal outputs for inputs representing equal received field strength, e.g., -85 dBm into each receiver would produce the same voltage out of the two discriminators, etc. By selecting the proper polarity for the bias voltage supply and the proper orientation of the two diodes, the output at the junction of the two diodes will follow the higher of the two carrier levels.

This "combined" signal was analyzed by the Distribution Analysis System (shown in figure 26). This is not the same as the distribution of the output of the combiner in the AN/MRC-98 diversity system. However, it should give a good indication of the possible effectiveness of the diversity system.

As indicated in the block diagram, figure 28, the time code on the magnetic tape is used to select specific periods of data for analysis.

V. 5. Crossings of the Five Minute Median

The system used to determine the crossings of the five minute medians does not give a highly accurate count of the median crossing, but does give a very close approximation. Since the distribution of the five minute periods are very nearly Rayleigh the crossings of the median are approximately equal to the crossings of the mean.

The system used to obtain the crossings is shown in figure 29. The data from the Data Discriminator are averaged by a circuit made up by the 1 M Ω resistor, the 10 μf capacitor and A_1. The RC time constant was selected to be equivalent to five minutes in recorded data time. (The data were played back twenty-five times the record speed.) The averaged data and the non-averaged data were then compared by the difference amplifier, A_2. The output of A_2 was then passed through a zener diode clipper and a Schmitt trigger. This provided a squared wave which represented the crossings of the mean. These were then counted by an electronic counter. The staircase outputs of the first two decades were recorded on a strip chart recorder. This produced a continuous count of the crossing for each run. The crossings for successive five minute periods were obtained by referring to the time recorded on the strip chart from the Time Code Reader.

V. 6. Voice Tape Evaluation

The voice tapes recorded over the communications systems were evaluated for the intelligibility of the voice data and the SCIM data by the SCIM equipment.

For the voice analysis the received voice tapes were played back on Ampex 602 Recorders to groups of ten (10) listeners. The listeners were in a quiet listening room and were presented the received voice tapes monaurally to their preferred ear through a set of hi fidelity cushioned ear phones. From this listener response data the average intelligibility of each test run was computed (intelligibility = percent correct response by all listeners to all words) along with the standard deviation.

In 1947 Bell Telephone Laboratories [French, 1947] presented the theory for the articulation index (AI) which relates in a quantitative way the physical characteristics of a speech communication system and the intelligibility of speech as perceived by a crew of trained listeners.

This theory holds that the signal (speech)-to-noise ratio (in 20 narrow frequency bands) of a communication system will, when properly weighted and summed, provide an AI value that is directly related to the intelligibility of speech heard over that system.

The Speech Communication Index Meter (SCIM) [Kryter and Ball, 1964] uses the 9 band method as established by Kryter [1962] rather than the 20 band method of calculating the articulation index. The SCIM, however, accommodates additional factors affecting speech that are not involved in the original procedures for calculating AI. Generally speaking the use of AI and SCIM is predicated upon the assumption that the system is reasonably steady state during both the time the measurements are being made and during general use. This assumption is not met by a tropo system; however, by using conventional sampling statistics, it is probable that AI and SCIM calculations have some degree of validity. These data are presented in Table I.

V. 7. Idle Channel Noise

The idle channel noise of an unloaded channel was recorded on one channel of the magnetic tape in a direct record mode. On playback the noise data was passed through a direct playback amplifier and a bandpass filter having a bandpass equivalent to the normal channel voice band of the MRC-98 system. The noise was then amplitude detected to obtain the envelope of the noise. The envelope was analyzed with the Distribution Analysis System. This analysis yields a plot of the percent of time the idle channel noise exceeds given levels.

V. 8. Correlation Computer

The correlation computer [Johnson, 1961], shown in figure 30, is a special purpose analog computer designed to continuously perform

the multiplication and integration or averaging required in solving the normalized correlation equations [Florman, 1960].

Two random input signals, x' and y', are first applied to the servo controlled signal conditioning amplifiers. The function of these amplifiers is to amplitude condition the incoming signals so as to equate their variances over the averaging time to be used in the computation. The two conditioned signals, x and y, are then applied to a sum and difference circuit and then to squarers followed by averaging circuits. This succession of circuitry produces the variance of the sum of the signals and the variance of their difference as follows:

$$\sigma^2_{x+y} = \sigma^2_x + \sigma^2_y + 2\sigma_{xy} = 2(\sigma^2_x + \sigma_{xy})$$

$$\sigma^2_{x-y} = \sigma^2_x + \sigma^2_y - 2\sigma_{xy} = 2(\sigma^2_x - \sigma_{xy}).$$

By further taking sums and differences of the above equations the covariance, σ_{xy}, and the sum of the variances, $\sigma^2_x + \sigma^2_y = 2\sigma^2_x$ are computed. The correlation coefficient is obtained through the use of a second servo system which computes the ratio (K) of the covariance to the variance σ^2_x.

$$K = \frac{2\sigma_{xy}}{\sigma^2_x + \sigma^2_y} = \frac{\sigma_{xy}}{\sigma^2_x} = \rho = \frac{\sigma_{x'y'}}{\sigma_{x'}\sigma_{y'}}.$$

The Correlation Computer was used wherever the cross correlation of two parameters was desired.

VI. Editing and Comparing Data

Some data are not included in the analysis for various reasons, while other data which are included might be considered as valid for some purposes but not for others. This section describes some of the reasons for eliminating data completely and retaining data with limited usefulness.

The philosophy used in the analysis of data for this report was to include as much as possible so that it would be available in a condensed form for use at some later time for possibly some other purpose.

A preliminary editing consisted of removing data, for reasons such as power failures, bad tape, etc. as indicated by the logs kept on-site during the tests. A second editing was performed by visually inspecting the playback from the magnetic tape onto chart rolls. Data were removed again for "obvious" power failures (see Table II), errors in the time code and for conditions during which the data were outside the range of calibrations. What remained, then, is contained in Table III which is explained in Section VII.

Several conditions were observed which might effect the accuracy, or the consistency of the data. During the early parts of the tests, pre and post calibrations were frequently quite different due to unstable power supplies. Also, it was generally true that whenever the 5 minute medians for the two FM (or other) receivers differed by 5 dB or more throughout a run, the calibrations for the two receivers differed by the same amount, and when the medians did not differ, the calibrations did not. The runs for which the calibrations differed by 5 dB or more are listed in Table II. Also listed in this table are those samples which show apparent aircraft effects, together with miscellaneous remarks which give reasons for omitting data, and observations concerning fading, power levels, etc.

The median signal levels given here are not strictly comparable for each of the systems. Although the medians for runs 1-52 for the FM and PCM show almost the same variation, the medians for the PCM are approximately 3 dB lower due to additional line losses. For runs 61-157, the carrier level was recorded by a different method for the PPM equipment than for any of the other systems, as noted in Section IV. Also, three different methods of calibration were used during these runs as noted previously. Figure 25 gives a rough estimate of the differences obtained by using these different methods, normalized to method 2. Additional differences were noted between successive calibrations using the same method. Moreover, the carrier levels for the digital system which were recorded during runs 61-157 were from the same receiver, at two different frequencies chosen from the four frequencies 67, 69, 71 and 73 MHz, while the two signals recorded for all other systems were from two different receiving systems using the spaced antennas. For runs 158-320, the carrier level for the delta-mod system was recorded by the same method as for the FM. However, the delta-mod used a wider bandwidth than the FM, and the LEL equipment did not have a sufficiently wide bandwidth to include the entire signal. At least part of the variability between the FM system and the digital systems from one run to the next is due to changes in transmitter power.

As with the medians, the error rates are not always comparable, the major difference being that two different systems, the Frederick and the GSC-4 were used to measure errors. However, differences also occurred within each system.

When the Frederick system was used, an out-of-sync pulse could be recorded as discussed in Section IV. Many times when it was recorded however, it could not be recovered from the magnetic tape for various reasons. The following observations were made for those periods for which the pulse could be recovered. Out-of-sync pulses occurred most

frequently for periods of high error rates. When the error rates were determined eliminating out-of-sync periods, they were changed by approximately 10% (i.e., an error rate of 10% would be 9% when out-of-sync periods were removed). Error rates greater than 10% are considered unreliable.

When the GSC-4 was used, an out-of-sync indication was not available for recording. It appeared that when the GSC-4 was out-of-sync, an error rate of 100% was recorded. The GSC-4 appeared to go out-of-sync for periods up to 1 minute. These apparent out-of-sync periods which were longer than a few seconds, are noted in the analysis.

The Frederick error counts taken from the magnetic tape agreed almost exactly with the minute-to-minute tabulations kept on site. However, the GSC-4 counts from the magnetic tape differed from the on-site counts, sometimes by large amounts. A possible explanation for this difference is that different types of pulses were used for recording and counting.

The median crossing rates for the different systems were generally comparable, with the exception of the Martin runs for which the different method of recording carrier level prevented fast fades from being recorded due to a long time constant in the equipment.

VII. Explanation of Table III (List of Data)

Table III contains the data remaining after the editing explained in the last Section. The listing gives the run number, the beginning of the 5 minute period (local time at East Island), the data rate, the number of channels, medians for two receivers (when available), the median crossings for the corresponding tracks, and (possibly) two columns of errors (percentages) together with the columns identifying the types of errors.

The final column contains remarks about the types of diversity used, whether the tests were looping tests, periods of obvious out-of-sync conditions for the Frederick or GSC-4, or periods when pads were put into the receiver.

The percent errors for the run may be obtained by averaging the percents for the 5 minute periods in that run, and a good approximation to the run median can be obtained by averaging the 5 minute medians.

Figures 31-49 show graphically the medians and errors from Table III. Figures 31-39 show both Frederick and GSC-4 errors while Figures 40-49 for the digital systems show only the Frederick errors. The median crossings from Table III are shown in Figures 50-74. Note that these are not always comparable, since some of the runs represented looping data, quad diversity, non diversity, etc.

VIII. System Performance

VIII. 1. Digital Data

Back-to-back tests were run on all of the systems in order to obtain information on the performance under steady signal conditions. The results of these tests for digital data are summarized in Figures 75-82. In these figures, different symbols are used to indicate the number of channels which were noise-loaded.

Figures 83-92 show the average of two recorded medians for a 5 minute period plotted versus the percent errors for that period. The different types of errors (GSC-4 and Frederick) are plotted on different graphs. Different symbols are used to denote the number of channels which were noise-loaded. Also noted on these figures are the data rates for those periods. All points on the lower boundary represent zero

errors. The limit of accuracy of the percentages is at least 10^{-4} and probably larger, since this represents an absolute accuracy of 7 counts in a 5 minute period.

These data have been severely edited with data removed for many reasons including the following:

Any data suspect of representing out-of-sync conditions has been removed. If an out-of-sync condition for GSC-4 data occurred during two 5 minute periods, the entire run was removed. If a power outage was noted in the log, the 5 minute periods preceding and following this were removed.

The PCM data shown in figures 86-87 are shown only for the runs after run 28 since equipment changes were made prior to run 28.

The PPM data are shown in 3 different blocks to correspond to the different methods of calibration used for those periods, as discussed in Section IV. 1. For runs 62-97 (figure 88) calibration method 2 (see figure 25) with 7.8 kpps was used. Runs 98-103 using the signal generator direct at 7.8 kpps and runs 104-112 using the signal generator direct at 125 kpps (method 3 in figure 25) are shown in figure 89. Runs 113-120 using the power amplifier through the converter at 125 kpps and runs 121-157 using the exciter through the converter at 125 kpps (method 1 in figure 25) are shown in figure 90.

As expected, the more data available the greater the spread of the data. However, one would expect that a more definite clustering of points would occur than appears in these data. Some of this spread is due to changing propagation conditions which can not be controlled, and some is due to factors which can be controlled. It is clear that every effort should be made to maintain standard operating conditions in the future tests, such as restricting the error measurements to only one type, adopting a standard bit rate for the tests, and obtaining immediate comparisons of calibrations in order to avoid possible uncertainties in the data.

VIII. 2. Idle Channel Noise

The idle channel noise was recorded directly onto the magnetic tape, as discussed in Section IV. The range was set to cover approximately -0 dBm to -25 dBm in order to record the peak noise. This range however, prevents obtaining a distribution of the noise. Only very occasional peaks (above -25 dBm from approximately .001 to .01 percent of the time) were noted. These peaks did not appear to correlate with errors. One possible explanation of this lack of correlation is that the idle channel noise was recorded from a different channel than the errors.

VIII. 3. Signal-to-Noise

The signal-to-noise for the digital systems appears to have an almost discrete character, i.e., it either appears at a high level or a low level. Thus, the distributions have a very sharp transition region between two level regions. As with the idle channel noise, the low regions of S/N did not appear to correspond with errors, or bursts of errors, and many errors occurred during periods of high S/N. Again, a possible explanation is that the S/N was recorded from a different channel than the errors. However, a visual inspection indicated that for 5 minute periods containing a large number of dropouts of S/N, there were also a large number of errors, and for periods with few dropouts, there were few errors. Since, for almost all runs, the median level, S/N, was the same as the high level S/N, the median was not useful for determining errors. However, it appeared that the percentage at which the transition from low to high level on the distribution occurred would correlate well with the errors for the same 5 minute period. A sufficently detailed analysis has not been performed to verify this.

For the FM system, the S/N had characteristics more nearly resembling those of the carrier, and even though the instantaneous correlation of S/N with errors was not good, the median S/N was more indicative than for the digital systems. However, throughout much of the tests, S/N could not be measured below 15 dB, and consequently, meaningful numerical estimates of correlation could not be obtained.

FDM and PCM systems should be compared from the standpoint of idle channel noise and also from the standpoint of signal distortion. It appears more appropriate to consider quantizing noise in the PCM channel to be equivalent to signal distortion of the FDM channel. PCM will have a relatively fixed level of quantizing noise whenever a signal is present in the voice band. However in the absence of signal the idle channel noise in a PCM channel is low due to the absence of quantizing steps.

IX. Propagation

All of the data from these tests appear to exhibit fading characteristics such as would be expected from "scattering". To a first order approximation, the short periods, such as the 5 minute periods used here, are Rayleigh distributed. The 5 minute periods were chosen as a result of preliminary analysis which indicated some variations between successive 5 minute periods of more than 6 dB. The variations between two minute medians within a 5 minute period were small. Because fade rates of 10 per 5 minute period were noted, a shorter period would not have been an adequate sampling interval. An indication that the 5 minute periods were not too short was that the spread of points for the 5 minute medians of figures 83-92 was only slightly larger than that of the comparable 30 minute periods.

The medians given here are not the same as the median transmission loss because these have not been normalized for the proper transmitted power. The transmitter power was varied from about 1kW to 10 kW during the tests. At least one 40 minute run shows a variation of 6 dB (from 1 kW to 4 kW) during the run. These power variations will be accounted for in a later report. During the tests the medians varied from approximately -70 dBm to -110 dBm with a median value of 88.2, and are in general agreement with the previous data shown in figures 5-8.

The median crossing varied from 10 per 5 minute period to almost 200 per 5 minute period (the latter being somewhat unusual) with a median value of 28.

A number of runs were selected for more detailed analysis. If anything, these runs should be considered as "exceptions" because of the way in which they were chosen, although they do not differ much from what might be considered "typical". The runs were chosen to try to include all possible combinations of high or low median signal levels and high or low fade rates. Distributions for both receivers for these runs are shown in figures 93-103 for the 5 minute periods noted in the figures. The curves labeled 4 and 5, or 2 and 3 in these figures represent the percent of time the signals from both receivers are below the level indicated on the ordinate. This should give a good indication of the improvement that can be obtained by the use of diversity. Also given in these figures is the correlation coefficient between the signals from the two receivers. It is easily seen that the correlation coefficient would not give a good measure of the expected diversity improvement for most of these samples. The median crossing rates for each receiver for these runs are given in Table IV.

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Table I

Word % Correct and SCIM Scores - ITT FDM by Run No.

FDM	% Correct	Standard Deviations of Errors	Average SCIM Scores	Standard Deviations of SCIM Scores
1	96.14	1.80	.95	.06
2	96.02	1.54	.96	.03
3	96.36	1.71	.96	.06
6	96.96	1.47	.96	.07
7	96.36	1.35	.96	.01
8	96.00	1.79	.98	.09
9	97.04	1.86	.96	.09
10	98.06	1.02	.99	.00
11	97.20	1.43	.98	.02
12	97.62	1.59	.98	.01
13	98.04	1.22	.99	.00
14	97.70	0.98	.99	.00
15	97.44	1.50	.99	.00
18	98.55	1.27	.96	.04
19	95.44	1.62	.97	.03
28	96.16	1.50	.92	.10
29	95.72	1.65	.89	.11
30	92.94	1.92	.89	.10
31	93.50	2.12	.89	.13
33	96.20	1.87	.97	.05
34	95.14	1.45	.98	.02
35	96.04	1.73	.95	.10
36	93.80	2.26	.91	.12
37	96.54	1.36	.97	.19
38	96.84	1.84	.95	.22
39	95.36	2.11	.94	.08
40	95.12	1.90	.95	.04
41	97.00	1.33	.96	.07
42	97.04	1.44	.98	.05
43	94.48	2.28	.96	.07

FDM	% Correct	Standard Deviations of Errors	Average SCIM Scores	Standard Deviations of SCIM Scores
45	96.86	1.41	.95	.08
46	94.10	1.76	.89	.11
47	95.38	1.89	.87	.16
48	94.52	1.88	.89	.12
49	95.06	1.93	.91	.11
52	94.08	2.06	.91	.12

Word % Correct and SCIM Scores - ITT PCM by Run No.

PCM	% Correct	Standard Deviation of Errors	Average SCIM Scores	Standard Deviations of SCIM Scores
2	72.96	6.37	.55	.34
3	77.64	3.38	.55	.31
6	69.16	6.62	.79	.22
7	64.48	7.06	.56	.27
8	63.30	13.15	.69	.25
9	88.98	3.12	.75	.21
10	84.10	4.56	.79	.20
11	84.36	3.12	.63	.20
12	93.70	2.34	.86	.18
13	94.42	1.83	.83	.16
14	89.26	3.78	.84	.16
15	90.24	2.47	.69	.24
18	NDA *	NDA *	.40	.30
28	92.94	2.39	.78	.15
29	97.26	1.51	.83	.12
30	92.10	2.17	.78	.23
31	90.04	2.52	.72	.18
33	96.40	1.31	.90	.15
34	96.74	1.48	.92	.04
35	81.92	8.55	.65	.32
36	85.04	2.55	.59	.28
37	87.36	3.19	.80	.18
38	95.64	1.64	.89	.08
39	87.46	2.86	.74	.28
40	92.84	2.61	.80	.18
41	92.52	2.37	.84	.17
42	94.46	1.70	.89	.10
43	90.62	2.55	.83	.22

PCM	% Correct	Standard Deviation of Errors	Average SCIM Scores	Standard Deviations of SCIM Scores
45	96.90	1.48	.83	.22
46	93.08	2.80	.80	.22
47	94.18	4.67	.81	.18
48	91.64	3.00	.78	.21
49	95.66	1.85	.86	.16
52	83.48	3.64	.66	.28

* NDA - No Data Available

Word % Correct and SCIM Scores - Martin FDM by Run No.

FDM	% Correct	Standard Deviations of Errors	Average SCIM Scores	Standard Deviations of SCIM Scores
61	97.80	1.01	.99	.00
62	96.70	1.75	.90	.12
63	97.74	1.20	.98	.02
64	96.00	1.66	.92	.07
65	NDA *	NDA *	.91	.13
66	94.66	1.70	.84	.11
67	94.14	2.06	.83	.13
68	94.40	1.79	.85	.11
69	94.92	2.48	.80	.18
70	96.36	1.53	.79	.16
71	93.04	2.61	.85	.08
72	92.74	2.36	.77	.16
73	95.56	2.58	.91	.11
74	NDA *	NDA *	.94	.04
75	97.76	1.19	.95	.03
76	NDA *	NDA *	.94	.09
77	97.74	1.40	.98	.02
78	96.44	2.42	.99	.26
79	96.26	1.97	.98	.02
80	96.48	2.14	.98	.02
81	97.74	1.00	.98	.03
82	96.60	1.52	.98	.02
83	97.46	1.19	.98	.02
84	97.70	1.47	.98	.02
85	98.20	1.11	.98	.03
86	97.30	1.33	.98	.02
87	97.88	1.32	.98	.04
88	97.26	.87	.98	.01
89	96.36	2.01	.98	.03
90	96.80	1.26	.96	.06

FDM	% Correct	Standard Deviations of Errors	Average SCIM Scores	Standard Deviations of SCIM Scores
91	94.16	4.08	.96	.05
98	95.56	1.44	.93	.12
99	96.36	1.68	.95	.05
100	94.06	1.98	.83	.20
104	94.46	2.34	.91	.05
106	91.90	2.61	.85	.11
107	93.34	1.99	.89	.10
108	95.20	1.63	.90	.10
109	93.90	1.86	.91	.06
110	90.50	2.68	.66	.19
112	96.80	1.23	.97	.03
113	91.22	2.64	.97	.05
114	97.74	1.43	.98	.00
115	NDA *	NDA *	.91	.10
116	96.70	1.61	.97	.01
117	96.26	1.90	.95	.02
118	96.84	1.39	.88	.08
119	92.70	2.08	.69	.14
120	91.76	2.90	.84	.24
121	95.64	1.70	.92	.09
122	94.06	2.02	.85	.12
123	93.04	1.97	.88	.09
124	94.92	2.14	.97	.03
125	NDA *	NDA *	.92	.11
126	93.14	2.14	.82	.15
127	93.86	2.05	.83	.09
128	96.66	1.73	.94	.06
129	96.60	1.39	.94	.06
130	96.96	1.50	.96	.04
132	96.06	1.59	.97	.04
133	97.06	1.49	.97	.05

FDM	% Correct	Standard Deviations of Errors	Average SCIM Scores	Standard Deviations of SCIM Scores
134	95.90	1.56	.98	.02
135	96.36	1.46	.95	.09
136	96.30	1.86	.97	.08
137	97.20	1.90	.99	.02
138	96.20	1.45	.99	.01
139	95.50	2.38	.98	.05
142	95.70	2.36	.98	.01
143	95.84	1.61	.98	.03
144	NDA *	NDA *	.98	.07
145	88.10	2.73	.59	.19
146	96.86	4.35	.57	.20
147	94.76	2.09	.83	.13
148	95.12	1.75	.89	.11
149	94.92	2.87	.88	.15
150	NDA *	NDA *	.53	.21
151	NDA *	NDA *	.54	.19
152	89.16	3.52	.69	.18
153	91.76	2.44	.64	.15
154	92.46	3.08	.79	.11
155	94.64	2.03	.90	.16
156	91.74	3.31	.89	.13

Word % Correct and SCIM Scores - Martin PPM by Run No.

PPM	% Correct	Standard Deviations of Errors	Average SCIM Scores	Standard Deviations of SCIM Scores
61	91.96	2.45	.32	.08
62	64.68	6.40	.19	.06
63	91.62	2.98	.52	.12
64	72.76	5.32	.18	.05
65	93.28	2.41	.36	.13
66	53.66	5.32	.16	.03
67	77.26	3.58	.24	.08
68	81.34	3.97	.34	.12
69	78.46	5.45	.41	.23
70	80.76	5.16	.39	.14
71	70.26	6.79	.66	.07
72	67.44	5.61	.26	.06
73	69.64	5.42	.06	.03
74	94.56	1.71	.35	.09
75	NDA *	NDA *	.48	.12
76	64.96	14.69	.06	.02
77	96.74	1.53	.60	.11
78	86.48	3.33	.16	.11
79	81.52	3.10	.07	.05
80	NDA *	NDA *	.51	.09
81	96.04	1.66	.61	.07
82	NDA *	NDA *	.69	.05
83	NDA *	NDA *	.48	.10
84	97.30	1.29	.71	.07
85	96.34	1.53	.62	.11
86	96.54	1.57	.56	.09
87	85.88	4.40	.14	.08
88	90.84	2.60	.31	.11

PPM	% Correct	Standard Deviations of Errors	Average SCIM Scores	Standard Deviations of SCIM Scores
89	95.90	1.86	.64	.08
90	91.94	2.08	.34	.09
91	96.64	1.63	.69	.03
98	83.24	13.24	.56	.16
99	89.44	3.42	.44	.18
100	46.80	6.32	.04	.02
104	85.44	5.29	.51	.16
106	73.14	3.83	.47	.13
107	71.84	5.23	.30	.14
108	82.98	3.77	.37	.17
109	80.84	4.39	.33	.18
110	71.16	6.48	.28	.17
112	95.66	1.67	.63	.16
113	90.34	3.00	.55	.14
114	88.72	2.94	.33	.10
115	87.16	7.49	.11	.08
116	76.10	4.27	.20	.12
117	87.90	3.40	.34	.19
118	92.16	2.38	.48	.19
119	63.46	3.35	.33	.13
120	87.66	3.48	.53	.17
121	88.76	2.66	.28	.16
122	85.28	2.60	.48	.18
123	79.00	5.19	.47	.16
124	91.88	2.15	.40	.18
125	74.94	3.14	.15	.08
126	60.54	5.42	.24	.16
127	79.92	3.34	.27	.12
128	92.32	2.13	.47	.14
129	81.78	3.47	.15	.07
130	85.00	2.62	.18	.07

PPM	% Correct	Standard Deviations of Errors	Average SCIM Scores	Standard Deviations of SCIM Scores
132	NDA *	NDA *	.20	.08
133	82.12	3.20	.22	.10
134	81.78	3.68	.20	.08
135	80.52	3.61	.23	.10
136	86.66	2.96	.25	.05
137	89.78	2.76	.33	.11
138	91.12	2.46	.38	.09
139	91.08	2.77	.38	.13
142	NDA *	NDA *	.26	.07
143	94.94	1.86	.49	.09
144	NDA *	NDA *	.20	.12
145	87.16	2.90	.32	.05
146	90.56	2.62	.33	.10
147	89.62	4.93	.44	.10
148	NDA *	NDA *	.27	.12
149	NDA *	NDA *	.17	.08
150	NDA *	NDA *	.51	.10
151	NDA *	NDA *	.41	.10
152	77.68	4.76	.22	.13
153	79.24	4.44	.24	.13
154	92.40	2.22	.34	.09
155	85.62	2.62	.14	.08
156	84.96	3.89	.18	.04

* NDA - No Data Available

Word % Correct and SCIM Scores - Motorola FDM by Run No.

FDM	% Correct	Standard Deviations of Errors	Average SCIM Scores	Standard Deviations of SCIM Scores
163	85.78	3.94	.68	.19
164	92.30	3.06	.80	.13
165	93.04	2.05	.80	.16
166	95.44	1.77	.92	.10
169	94.48	3.21	.93	.07
170	96.96	1.69	.94	.08
171	94.74	3.91	.97	.04
172	97.14	1.47	.95	.08
173	96.60	1.32	.91	.10
174	93.86	3.68	.92	.08
176	94.52	5.26	.98	.02
177	97.26	1.30	.98	.06
178	NDA *	NDA *	.98	.05
179	97.46	1.83	.94	.07
180	97.30	1.51	.97	.01
181	95.58	3.04	.98	.00
182	95.20	1.74	.91	.05
183	93.00	2.13	.82	.04
184	95.82	1.82	.95	.08
185	87.46	13.14	.78	.05
186	93.56	2.33	.77	.05
187	93.36	1.94	.83	.17
188	94.36	2.33	.83	.12
189	83.80	3.82	.65	.20
190	88.48	6.94	.79	.18
191	81.48	12.36	.76	.15
192	85.08	3.73	.77	.15
193	87.70	7.24	.72	.20
198	86.08	4.76	.77	.18

FDM	% Correct	Standard Deviations of Errors	Average SCIM Scores	Standard Deviations of SCIM Scores
200	NDA *	NDA *	.61	.18
201	82.36	4.48	.64	.21
202	88.88	2.78	.73	.14
203	89.76	3.31	.64	.23
204	NDA *	NDA *	.98	.00
208	89.94	6.42	.93	.05
209	NDA *	NDA *	.94	.12
210	NDA *	NDA *	.51	.27
211	NDA *	NDA *	.70	.16
212	NDA *	NDA *	.70	.15
215	95.64	2.05	.96	.07
216	95.16	2.05	.90	.07
217	95.96	1.55	.96	.01
218	94.58	1.70	.90	.06
221	73.34	5.81	.53	.24
222	NDA *	NDA *	.60	.22
223	75.04	4.14	.67	.19
224	89.76	4.08	.74	.18
226	92.14	2.86	.83	.10
227	NDA *	NDA *	.77	.18
229	NDA *	NDA *	.92	.07
232	NDA *	NDA *	.83	.05
233	NDA *	NDA *	.79	.09
256	NDA *	NDA *	.86	.10
257	NDA *	NDA *	.77	.01
258	93.84	2.26	.67	.24
259	93.96	2.33	.78	.12
261	96.56	1.38	.80	.02
262	92.08	2.20	.78	.01
263	NDA *	NDA *	.78	.03

FDM	% Correct	Standard Deviations of Errors	Average SCIM Scores	Standard Deviations of SCIM Scores
264	NDA *	NDA *	.94	.04
265	95.94	1.91	.87	.03
266	96.00	1.82	.87	.04
267	97.24	1.77	.90	.08
268	96.56	2.10	.88	.10
270	98.18	1.24	.90	.05
271	NDA *	NDA *	.90	.04
272	97.56	1.67	.90	.08
273	96.80	1.59	.95	.03
274	96.86	1.85	.90	.07
275	96.30	1.39	.89	.05
278	92.58	2.74	---	---
280	91.80	2.69	---	---
282	91.74	4.66	.84	.09
283	91.14	6.69	.85	.07
284	94.44	3.22	.88	.05
285	96.20	2.26	---	---
286	96.08	1.87	.92	.08
290	85.50	6.06	.57	.28
292	89.92	2.91	---	---
294	88.30	3.41	---	---
279	58.32	5.79	.45	.05
298	NDA *	NDA *	.36	.06
299	NDA *	NDA *	.48	.17
300	89.06	2.81	.72	.11
301	85.62	3.68	.70	.15
310	91.00	3.02	---	---
312	91.80	2.99	---	---
313	89.42	3.65	---	---
314	82.44	6.44	---	---
315	90.56	2.91	---	---
317	96.64	1.43	---	---
318	80.36	5.05	---	---

*NDA - No Data Available

Word % Correct and SCIM Scores - Motorola Delta Modulation

Delta Mod.	% Correct	Standard Deviations of Errors	Average SCIM Scores	Standard Deviations of SCIM Scores
160	95.04	1.97	.85	.07
161	95.02	2.59	.89	.02
162	95.84	1.70	.89	.01
163	95.56	1.92	.87	.06
164	95.04	2.01	.77	.10
165	94.50	1.98	.88	.09
166	94.78	2.68	.92	.02
167	93.12	2.20	.76	.20
168	94.92	3.24	.85	.20
169	96.44	1.88	.91	.02
170	96.64	1.17	.89	.08
171	95.20	1.97	.82	.05
172	96.60	1.39	.89	.04
173	96.68	1.92	.89	.04
174	96.70	1.36	.85	.08
176	95.80	2.12	.90	.02
177	96.28	1.67	.90	.17
178	92.94	3.11	.78	.02
179	95.30	2.10	.79	.03
180	97.64	1.29	.80	.04
181	95.56	2.48	.79	.03
182	93.70	2.51	.77	.03
183	92.06	2.54	.77	.04
184	NDA*	NDA*	.80	.12
185	94.50	2.27	.78	.15
186	NDA*	NDA*	.77	.16
187	93.30	2.07	.76	.02
188	93.48	2.29	.79	.06
189	86.02	4.31	.64	.25
190	88.82	4.20	.75	.11

Delta Mod.	% Correct	Standard Deviations of Errors	Average SCIM Scores	Standard Deviations of SCIM Scores
191	90.78	2.87	.70	.14
192	84.22	3.68	.65	.16
193	91.82	3.46	.78	.06
198	92.16	3.05	.75	.07
200	81.22	3.71	.65	.13
201	90.98	2.37	.69	.16
202	89.76	3.31	.70	.14
203	NDA*	NDA*	.65	.01
204	NDA*	NDA*	.76	.10
208	NDA*	NDA*	.77	.01
209	NDA*	NDA*	.83	.01
210	NDA*	NDA*	.52	.27
211	NDA*	NDA*	.65	.18
212	NDA*	NDA*	.78	.09
213	92.84	4.31	---	---
214	92.34	3.45	---	---
215	89.06	2.90	.83	.02
216	NDA*	NDA*	.80	.06
217	92.12	2.00	.83	.02
218	92.34	2.16	.83	.05
219	93.50	2.28	.63	.16
220	93.38	2.21	---	---
221	NDA*	NDA*	.63	.16
222	NDA*	NDA*	.61	.22
223	80.56	1.65	.57	.06
224	91.52	2.74	.79	.09
226	93.24	2.26	.78	.10
227	90.66	3.40	.82	.07
228	88.76	2.58	.83	.02
229	NDA*	NDA*	.84	.02
232	92.76	2.36	.78	.02

Delta Mod.	% Correct	Standard Deviations of Errors	Average SCIM Scores	Standard Deviations of SCIM Scores
233	87.38	5.48	.77	.08
235	91.38	2.70	.79	.04
236	89.42	2.91	.76	.03
237	88.20	3.18	.77	.02
238	NDA*	NDA*	.78	.02
239	89.16	3.41	.78	.05
240	90.36	2.31	.80	.04
241	92.16	2.27	.81	.03
242	92.04	2.29	.79	.06
243	91.56	2.36	.80	.03
244	92.96	2.21	.78	.03
245	92.92	1.90	.79	.03
246	93.06	2.20	.79	.04
247	92.18	2.47	.80	.03
248	86.82	5.00	---	---
249	NDA*	NDA*	.71	.11
250	90.84	3.24	.76	.04
251	91.52	3.07	.82	.03
252	83.04	5.08	.68	.13
256	NDA*	NDA*	.85	.02
257	NDA*	NDA*	.86	.02
258	96.92	1.63	.87	.02
259	96.68	1.70	.85	.02
261	97.28	1.62	.86	.02
262	96.92	1.84	.87	.02
263	NDA*	NDA*	.83	.02
264	91.86	2.97	.76	.04
265	90.88	3.56	.74	.01
266	91.02	2.57	.75	.03
267	93.12	1.93	.75	.01

Delta Mod.	% Correct	Standard Deviations of Errors	Average SCIM Scores	Standard Deviations of SCIM Scores
268	93.34	2.36	.76	.04
270	92.10	2.38	.78	.08
271	93.70	2.08	.80	.02
272	90.26	2.98	.79	.02
273	90.08	4.06	.79	.05
274	87.70	5.07	.80	.02
275	92.54	2.70	.80	.02
277	92.52	5.77	---	---
278	NDA*	NDA*	.82	.02
279	NDA*	NDA*	.83	.02
280	89.60	3.50	.81	.04
281	NDA*	NDA*	.83	.02
282	NDA*	NDA*	.81	.02
283	NDA*	NDA*	.81	.03
284	93.38	2.42	.80	.02
285	91.40	3.01	.79	.02
286	89.84	3.91	.78	.02
287	NDA*	NDA*	.68	.21
290	92.72	3.10	.71	.16
291	90.36	3.42	.79	.06
292	90.52	2.76	.78	.03
293	NDA*	NDA*	.80	.05
295	88.64	1.21	.80	.04
296	88.88	3.21	.69	.12
297	69.6	6.06	.32	.15
298	NDA*	NDA*	.35	.27
299	84.14	4.56	.49	.16
300	91.28	2.72	.70	.14
301	NDA*	NDA*	.63	.17
310	91.44	2.95	.78	.03
312	90.14	3.39	.80	.04

Delta Mod.	% Correct	Standard Deviations of Errors	Average SCIM Scores	Standard Deviations of SCIM Scores
313	90.94	4.43	.81	.02
314	89.42	2.69	.71	.16
315	89.86	2.76	.78	.03
317	92.84	2.27	.80	.07
318	74.6	1.54	.60	.22

Table II

Run No.	A Receiver	B Receiver	C Time	D Time	Remarks
1	5, 6	6			
2	5, 6	6		0455-0505	
3	5, 6	6		0615-0625	
4	5, 6				
5	1, 3;5, 6				
6	1, 3;5, 6			2205-2210	
7	1, 3;5, 6			2300-2310	
8	1, 3;5, 6			0020-0025	
9	1, 3;5, 6	1			
10	5, 6	1		0935-0940	
11	5, 6			1235-1240	
12	1, 3;5, 6	1		1705-1710	
13			1106-1108 1110-1113	1135-1140	

A -- Calibration differences between receivers

B -- Calibration differences between pre & post

C -- Occurrence of possible aircraft

D -- Omit due to apparent power failure

Run No.	A Receiver	B Receiver	C Time	D Time	Remarks
14				1405-1410	
15			1535-1538		
18					No post tape calibration
19					
28		6			
29				1740-1750	
30				1150-1210	
31					
32					
33			1605-1607		
34					
35	5, 6	6	1625-1626		
36	5, 6	6	1442-1444 1445-1447		
37	5, 6	6	1600-1602		
38	5, 6	6			

	A	B	C	D	
Run No.	Receiver	Receiver	Time	Time	Remarks
39	5, 6	5, 6			
40	5, 6	5, 6			
41	5, 6	5, 6			
42	5, 6	5, [illegible]			
43	5, 6	5, 6			
44	5, 6	5, 6			
45	5, 6	5, 6	1316-1318 1322-1325		
46	1, 3;5, 6	5, 6			
47	1, 3;5, 6	5, 6			
48	1, 3;5, 6	5, 6			
49	1, 3;5, 6	5, 6			
52					
62					
63					
64		69 Mc, 73 Mc			

	A	B	C	D	
Run No.	Receiver	Receiver	Time	Time	Remarks
65		69 Mc, 73 Mc			
66	67, 69 Mc	69 Mc, 73 Mc			
67	67, 69 Mc	69 Mc, 73 Mc			
68	67, 69; 71, 73;1, 3	3			
69	67, 69; 71, 73;1, 3	3			
70	67, 69; 71, 73;1, 3	3			Omit period 1345-1350 due to bad time code
71	67, 69; 71, 73;1, 3	3			Omit period 1435-1440 due to bad time code
72	67, 69; 71, 73;1, 3	3			Omit period 1545-1550 due to bad time code
73	67, 73				
74	67, 73				Omit period 1110-1115 due to bad time code
75	67, 73				
76	67, 73			1342-1355	Power failure G. T. I.
77	67, 73				Omit period 1505-1510 due to bad time code
78	67, 73				
79				1607-1610	

	A	B	C	D	
Run No.	Receiver	Receiver	Time	Time	Remarks
80		1		1649-1700	
81		1			Omit period 1805-1810 due to bad time code
82	1, 3	1			
83	1, 3	1		1933-1936	
84		73			
85		73			
86	Omit runs 86-87				Calibration curves not available
88		67			
89		67			
90		67			
91		67			
92					
93					
94					No post tape calibrations for R x 69 Mc, 73 Mc, 1 and 3
98	1, 3	73			

	A	B	C	D	
Run No.	Receiver	Receiver	Time	Time	Remarks
99	1, 3	73			
100	69, 73	73			
104		1			
105		1	1628-1631 1634-1636 1644-1647		
106	69, 73	1			
107	69, 73	1			
108	69, 73	1			
109	69, 73	1			
110	69, 73	1			
112	69, 71	69, 71			
113		1	1054-1100		
114		1			
115		1			
116	69, 71; 1, 3	1			
117	69, 71; 1, 3	1			

	A	B	C	D	
Run No.	Receiver	Receiver	Time	Time	Remarks
118	69, 71;1, 3	1			
119	1, 3	3	1039-1040		
120	1, 3	3	1130-1132		
121	69, 71;1, 3		0956-1001		
122	69, 71;1, 3				
123	69, 71; 1, 3				
124	69, 71;1, 3				
125	69, 71;1, 3				
126	69, 71;1, 3				
127	69, 71;1, 3				
128	1, 3	3			
129	1, 3	3	1055-1101		
130	1, 3	3	1155-1157		
131	1, 3	3			
132		3			

	A	B	C	D	
Run No.	Receiver	Receiver	Time	Time	Remarks
133		3			
134		3			
135	67, 69	67			
136	67, 69	67			
137		67	1514-1517		
138		67			
139		67			
141		73, 1, 3			
142	67, 73	73			
145	1, 3	1			
146	1, 3	1			
147	1, 3	1			
148		1			
149		1			
150	1, 3	1, 3	1245-1247		

	A	B	C	D	
Run No.	Receiver	Receiver	Time	Time	Remarks
151	1, 3	1, 3			
152	1, 3	1, 3			
153	1, 3	1, 3	1533-1537		
154	1, 3	1, 3			Omit channel 4, R x 1 out 1622-1625
155	1, 3				
156	1, 3				
157	1, 3				
158		1, 5			
159	1, 3;5, 6	1, 5	1623-1626		
160					No pre tape calibration for R x 5 and 6; no signal on R x 5 and 6
161					No pre tape calibration for R x 5 and 6; no signal on R x 5 and 6
162	1, 3				Rapid fading channel 4, R x 5
163	1, 3		1108-1110		No signal on R x 6 channel 5
164	1, 3				
165					

Run No.	A Receiver	B Receiver	C Time	D Time	Remarks
166					
167	5, 6	5, 6			Omit channels 4 and 5
168	5, 6	5, 6		1345-1350	Omit channels 4 and 5; Omit channels 2 and 3 (1345-1350) due to power failure
169	5, 6	5, 6	1613-1616		
170	5, 6	5, 6			
171	Omit runs 171-172				No Run 171 recorded; High signal on Run 172 caused data to go out of range on all receivers
173					
174					
175	Omit run 175				No Run 175 recorded
176	1, 3	1			
177	Omit runs 177-178				Data unreliable for these runs
179	5, 6				
180	5, 6				
181	5, 6				
182	1, 3;5, 6				

	A	B	C	D	
Run No.	Receiver	Receiver	Time	Time	Remarks
183	1, 3;5, 6				
184	Omit run 184				No record on sanborn charts
185					
186					Rapid fading on channels 4 and 5 at 1345-1350
187	5, 6				
188	5, 6				
189		1, 5			
190		1, 5			
191	1, 3;5, 6	1, 5			
192	1, 3;5, 6	1, 5			
193					
194					
195					
196	1, 3				
198	1, 3		1625-1628		

	A	B	C	D	
Run No.	Receiver	Receiver	Time	Time	Remarks
200			1154-1157		
201					All channels either limited on tape or in transmitting or receiving (particularly 5)
202					All channels either limited on tape or in transmitting or receiving (particularly 5)
203					All channels either limited on tape or in transmitting or receiving (particularly 5)
204		1	1039-1053		
205		1			
206		1			
207	1, 3	1			
208	1, 3	1			
209	1, 3	1			
210					All channels either limited on tape or in transmitting or receiving
211					All channels either limited on tape or in transmitting or receiving
212	1, 3;5, 6				All channels either limited on tape or in transmitting or receiving
213					
214					

	A	B	C	D	
Run No.	Receiver	Receiver	Time	Time	Remarks
215					High signal level
216					
217					High signal level
218		1, 3;5, 6			Omit channel 4, R x 5 at 1335 to end of run (signal out of range)
219		1, 3;5, 6			High signal level going out of range 1425-1440 and 1455-1500
220		1, 3;5, 6			
221				0945-0950	Omit channels 4 and 5 for period 0945-0950 (transmitter off at 0948)
222		5			
223		5			
224		5			
225		5			
226		5			
227		5			
228		5			
229		5			

	A	B	C	D	
Run No.	Receiver	Receiver	Time	Time	Remarks
231		5			
232	5, 6	5			
233	5, 6	5			Low signal level on channel 5, R x 6
234	5, 6	5			
235					
236					
237					
238					
239		1			
240		1			
241		1			
242		1			
243		1			
244					
245					

	A	B	C	D	
Run No.	Receiver	Receiver	Time	Time	Remarks
246					
247					
248					
249					
250					
251					
252					
253					
254		1			No pre tape calibration for R x 3
255	1, 3	1			
256	1, 3;5, 6	1, 5			Rapid fading
257	1, 3;5, 6	1, 5			
258	1, 3	1, 5			
259	1, 3	1, 6			
260	1, 3	1, 6			

	A	B	C	D	
Run No.	Receiver	Receiver	Time	Time	Remarks
261	1, 3	1, 6			
262	5, 6	1, 6			Channel 3 has break or disturbance in signal at 1555
263	5, 6	1, 6			
264	1, 3;5, 6				
265		1			
266		1			
267		1			
268	1, 3;5, 6	1			
269	1, 3;5, 6	1			
270	5, 6	5	1041-1043		
271	5, 6	5	1130-1132		
272	5, 6	5			
273	5, 6	5			
274	5, 6	5			
275	5, 6	5			

	A	B	C	D	
Run No.	Receiver	Receiver	Time	Time	Remarks
278	1, 3				Rapid fading channel 3
279	1, 3				Rapid fading
280	1, 3				
281	1, 3				Channel 2 is noise limited from 1620 to end of run
282	1, 3;5, 6		1139-1141		
283	1, 3;5, 6		1303-1307		
284	1, 3;5, 6				
285	1, 3;5, 6				
286	1, 3;5, 6				1609-1614
287					
290	5, 6				Rapid fading
291					
292					Channels 2 and 3 are noise limited
293					Channels 2 and 3 are noise limited
295					Channels 2 and 3 are noise limited

	A	B	C	D	
Run No.	Receiver	Receiver	Time	Time	Remarks
296					
297		1, 5			
298		1, 5			
299		1, 5			
300	5, 6	1, 5			
301	5, 6	1, 5			
303					
304					
305					High signal level
306		1			Rapid fading
307		1			Rapid fading
308		1			High fade rate
309	1, 3	1			High fade rate
310	1, 3	1			High fade rate
312					No post tape calibrations R x 1 and R x 5

Run No.	A Receiver	B Receiver	C Time	D Time	Remarks
313					No post tape calibrations R x 1 and R x 5; High fade rate
314					No post tape calibrations R x 1 and R x 5; High fade rate
315 Omit run 315					Extremely rapid fading in all channels; all channels go out of range; FDM channels consist
316					High signal level; High fade rate
317					High signal level
318					
319	5, 6				High signal level
320	5, 6				High signal level for channels 4 and 5

Table III

FDM DATA

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
1	235			-98.4	-91.?	42	31	NONE		NONE		
	240			-88.3	-91.0	33	44					
	245			-88.2	-89.8	36	37					
	250			[illegible]	-89.2	37	40					
	255			-89.2	-90.3	38	33					
	300			-89.0	-89.2	37	35					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
2	505			-86.4	-89.2	35	36	NONE		NONE		
	510			-89.0	-89.9	34	31					
	515			-87.4	-89.0	30	34					
	520			-87.4	-88.7	29	36					
	525			-87.5	-89.2	30	35					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
3	550			-90.5	-90.7	30	30	NONE		NONE		
	555			-90.0	-89.5	31	24					
	600			-90.4	-88.0	24	24					
	605			-89.4	-88.5	28	24					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
4	1500	2400	24	-84.7	-85.9	19	17	GSC4	0.5390	NONE		
	1505			-85.0	-87.7	16	12		0.0000			
	1510			-84.5	-86.6	23	17		0.0000			
	1515			-86.1	-88.3	12	15		0.0000			
	1520			-83.7	-85.9	19	12		0.0000			
	1525			-84.5	-86.5	19	12		0.0000			
	1530			-83.6	-85.6	14	15		0.0000			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
5	2035	2400	24	-85.3	-82.0	21	14	GSC4	0.0000	NONE		
	2040			-85.4	-82.2	13	12		0.0000			
	2045			-85.9	-81.8	17	23		0.0000			
	2050			-86.5	-83.7	15	11		0.0000			
	2055			-85.6	-81.8	17	10		0.0000			
	2100			-86.5	-83.2	18	15					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
6	2135	2400	24	-86.7	-83.6	15	15	GSC4	0.0160	NONE		
	2140			-87.4	-83.2	11	14		0.0130			
	2145			-86.0	-83.6	10	11		0.0170			
	2150			-87.9	-84.0	18	19		0.0030			
	2155			-90.0	-85.1	12	15		0.0190			
	2200			-89.0	-85.2	15	12		0.0220			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
7	2235	2400	24	-89.3	-86.5	15	18	GSC4	0.2400	NONE		
	2240			-88.7	-84.1	19	22		0.0014			
	2245			-89.8	-84.1	25	20		0.0030			
	2250			-87.7	-82.7	22	19		0.0018			
	2255			-86.3	-83.3	17	18		0.0003			

FUM DATA

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
8	0	2400	24	-87.1	-83.3	17	16	GSC4	0.0120	NONE		
	5			-89.5	-84.7	23	24		0.0780			
	10			-86.8	-83.7	24	22		0.0018			
	15			-87.4	-83.3	21	23		0.0053			
	2350			-88.1	-84.9	17	17		0.2100			
	2355			-89.0	-84.4	18	18		0.2200			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
9	1810			-84.4	-82.2	27	26	NONE		NONE		
	1815			-84.6	-81.9	25	22					
	1820			-84.9	-82.2	30	28					
	1825			-84.9	-81.8	27	25					
	1830			-83.9	-80.8	26	23					
	1835			-82.4	-82.0	23	26					
	1840			-81.2	-81.8							
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
10	1905	2400	24	-73.0	-77.5	19	19	FRED	9.6500	NONE		
	1910			-74.4	-77.7	20	20		27.0000			NO SYNCH
	1915			-72.7	-75.4	22	20		1.6500			
	1920			-73.4	-75.2	26	26		23.6100			NO SYNCH
	1925			-73.2	-75.7	22	19		7.8100			
	1930			-73.9	-77.7	22	22		29.2300			NO SYNCH
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
11	1205	2400	24	-78.2	-78.8	37	37	FRED	0.0003	NONE		
	1210			-79.1	-80.1	36	40		0.0018			
	1215			-77.6	-79.2	49	41		0.0015			
	1220			-74.3	-76.2	40	38		0.0011			
	1225			-76.0	-78.9	41	35		0.0021			
	1230			-76.6	-78.7	37	37		0.0019			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
12	1635	2400	24	-74.9	-72.8	12	16	FRED	0.0004	NONE		
	1640			-71.2	-71.4	15	18		0.0001			
	1645			-73.2	-71.7	16	15		0.0000			
	1650			-73.0	-73.0	15	14		0.0001			
	1655			-72.7	-72.2	14	18		0.0017			
	1700			-72.4	-72.0	24	20		0.0003			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
13	1105	2400	24	-83.3	-82.7	53	41	FRED	0.0003	NONE		
	1110			-82.1	-81.1	49	61		0.0000			
	1115			-81.7	-81.3	28	26		0.0000			
	1120			-80.8	-80.1	24	20		0.0010			
	1125			-81.9	-81.7	19	26		0.0000			
	1130			-82.0	-81.5	27	23		0.0007			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
14	1335	2400	24	-85.4	-85.9	24	17	FRED	0.0012	NONE		
	1340			-84.5	-85.3	25	29		0.0000			
	1345			-85.1	-84.3	33	26		0.0001			
	1350			-84.1	-83.7	32	25		0.0007			
	1355			-84.4	-83.8	30	30		0.0000			
	1400			-84.0	-83.5	28	32		0.0001			

FDM DATA

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
15	1505	2400	24	-81.4	-81.1	22	25	FRED	0.0001	NONE		
	1510			-81.6	-82.4	23	23		0.0000			
	1515			-81.9	-82.3	25	22		0.0000			
	1520			-81.8	-82.6	21	21		0.0000			
	1525			-81.3	-81.3	30	21		0.0004			
	1530			-80.8	-81.3	160	130		0.0122			
	1535			-78.8	-79.4							
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
18	2225	2400	24	-87.2	-88.2	112	100	GSC4	4.4600	NONE		NO SYNCH
	2230			-89.1	-90.4	130	118		0.0003			
	2235			-90.4	-91.3	150	100		0.0000			
	2240			-90.2	-91.3	96	80		0.0180			
	2245			-87.5	-88.1	144	102		0.0190			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
19	1420			-94.1	-93.4	69	65	NONE		NONE		
	1425			-93.7	-92.9	63	70					
	1430			-94.5	-93.4	73	70					
	1435			-93.8	-92.8	64	65					
	1440			-93.0	-92.2	54	50					
	1445			-93.2	-92.3	58	50					
	1450			-93.8	-93.0	49	45					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
28	1605	2400	24	-95.4	-96.4			GSC4	0.0000	NONE		
	1610			-95.3	-95.6	73	60		0.0000			
	1615			-96.6	-97.2	75	65		0.0000			
	1620			-96.2	-97.3	81	80		0.0000			
	1625			-95.9	-97.3	71	75		0.0000			
	1630			-96.5	-97.7	85	75		0.0000			
	1635			-95.8	-97.9	85	85		0.0000			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
29	1735	2400	24	-95.8	-95.5	90	93	GSC4	0.1200	NONE		
	1750			-95.7	-93.7				0.2200			
	1755			-95.0	-94.0	90	81		0.0860			
	1800			-94.2	-92.9	90	79		0.0660			
	1805			-94.6	-94.7	90	71		0.3100			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
30	1135	2400	24	-95.8	-96.7	60	50	FRED	2.1600	NONE		
	1140			-96.8	-95.9	65	62		1.3200			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
31	1350	2400	24	-96.5	-95.6	65	54	FRED	0.5400	NONE		
	1355			-96.1	-94.6	55	44		0.6400			
	1400			-96.3	-95.2	60	50		0.7700			
	1405			-94.5	-93.4	52	51		0.7600			
	1410			-95.2	-93.8	42	43		1.0500			
	1415			-95.3	-94.8	50	52		0.8500			
	1420			-94.7	-93.2	50	50		0.1100			

FDM DATA

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
32	1505	2400	24	-91.8	-90.1	48	48	FRED	0.2100	NONE		
	1510			-93.2	-91.1	48	43		0.1900			
	1515			-88.7	-86.5	38	35		0.0110			
	1520			-86.4	-84.6	31	35		0.0040			
	1525			-86.4	-85.1	40	36		0.0690			
	1530			-93.5	-91.6	33	30		0.0980			
	1535			-92.9	-91.0	44	43		0.0620			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
33	1605	2400	24	-89.4	-86.5	55	53	FRED		NONE		
	1610			-89.2	-88.5	36	38		0.0720			
	1615			-89.5	-88.3	49	46		0.0220			
	1620			-87.8	-86.5	46	48		0.0015			
	1625			-89.6	-89.0	46	45		0.0330			
	1630			-86.7	-86.1	47	49		0.0046			
	1635			-85.3	-84.2	33	41		0.0030			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
34	1750	2400	24	-83.6	-82.6	44	45	FRED	0.0010	NONE		
	1755			-85.6	-84.0	61	55		0.0025			
	1800			-88.8	-87.3	47	40		0.2200			
	1805			-89.8	-87.7	58	56		0.0650			
	1810			-91.9	-90.7	79	73		0.1100			
	1815			-88.7	-86.9	65	65		0.0420			
	1820			-86.5	-85.0	53	50		0.0140			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
35	1330	2400	24	-89.0	-88.3	52	46	GSC4	14.6100	NONE		NO SYNCH
	1335			-87.3	-87.4	44	45		2.1400			
	1340			-87.6	-87.7	36	34		3.1600			
	1345			-89.0	-88.5	50	35		3.3000			
	1350			-90.6	-89.6	52	52		27.1300			NO SYNCH
	1355			-90.7	-90.7	43	54		5.7000			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
36	1425	2400	24	-94.0	-93.8	71	72	GSC4	4.3000	NONE		
	1430			-92.8	-93.0	70	68		3.1200			
	1435			-92.7	-92.4	71	66		3.9900			
	1440			-90.8	-90.2	54	42		3.9000			
	1445			-90.0	-90.6	40	33		2.6800			
	1450			-91.5	-91.0	40	44		2.3900			
	1455			-94.3	-93.6	65	56		4.8200			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
37	1535			-89.6	-90.5	55	56	NONE		NONE		
	1540			-89.3	-90.1	50	52					
	1545			-87.9	-88.9	51	41					
	1550			-86.4	-87.3	43	35					
	1555			-87.9	-88.1	54	48					
	1600			-85.6	-87.5	39	37					
	1605			-83.4	-85.9	43	40					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
38	1625			-84.4	-86.0	47	38	NONE		NONE		
	1630			-83.0	-85.0	48	48					
	1635			-84.7	-86.2	46	47					
	1640			-84.7	-86.7	50	47					
	1645			-84.3	-85.6	61	59					
	1650			-82.9	-84.6	58	51					
	1655			-81.6	-80.9	53	51					

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
39	720	2400	24	-87.9	-87.7	49	43	GSC4	0.0001	NONE		
	725			-86.4	-87.0	50	45		0.0000			
	730			-86.1	-86.4	48	51		0.0000			
	735			-87.0	-87.4	59	50		0.0007			
	740			-88.1	-86.3	55	49		0.0010			
	745			-86.4	-88.2	55	39		0.0004			
	750			-87.2	-88.7	58	50		0.0010			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
40	810			-89.3	-91.0	47	43	NONE		NONE		
	815			-88.2	-93.3	41	42					
	820			-88.7	-91.9	43	44					
	825			-88.4	-88.5	35	41					
	830			-85.3	-87.0	38	38					
	835			-81.6	-84.2	26	25					
	840			-81.3	-83.1	22	27					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
41	905			-87.5	-89.5	40	40	NONE		NONE		
	910			-86.5	-88.2	35	42					
	915			-84.4	-85.9	29	32					
	920			-85.0	-86.4	45	49					
	925			-82.5	-84.5	41	43					
	930			-82.1	-84.2	46	39					
	935			-80.7	-82.3	42	42					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
42	1005	2400	24	-80.0	-81.7	39	29	GSC4	0.0025	NONE		
	1010			-79.5	-80.4	31	34		0.0000			
	1015			-79.8	-81.3	32	22		0.0120			
	1020			-80.6	-79.6	19	18		0.0030			
	1025			-78.1	-79.9	22	23		0.2000			
	1030			-80.6	-83.4	14	21		0.0003			
	1035			-79.5	-81.2	24	28		0.0007			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
43	1105	2400	24	-86.7	-87.8	33	27	GSC4	0.0010	NONE		
	1110			-83.5	-84.4	30	31		0.0015			
	1115			-83.1	-84.4	28	22		0.0003			
	1120			-84.6	-86.5	26	18		0.0080			
	1125			-85.5	-86.2	18	22		0.0003			
	1130			-85.7	-87.7	24	19		0.0060			
	1135			-84.2	-85.2	35	28		0.0003			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
44	1205	2400	24	-73.5	-75.3	26	12	GSC4	0.0000	NONE		
	1215			-77.4	-78.9	18	23		0.0000			
	1220			-78.9	-82.2	29	23		0.0086			
	1225			-79.0	-80.7	16	14		0.0026			
	1230			-79.5	-80.7	12	12		0.0130			
	1235			-80.8	-81.5	20	17		0.0210			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
45	1250	2400	24	-73.1	-75.1	12	13	GSC4	0.0210	NONE		
	1255			-75.7	-77.2	15	20		0.0000			
	1300			-77.0	-78.5	19	22					
	1305			-75.3	-76.8	23	18					
	1310			-79.0	-80.4	18	14					
	1315			-77.4	-78.6	64	58					
	1320			-78.8	-81.1	51	46					

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
46	850	2400	24	-92.4	-91.6	38	35	GSC4		NONE		
	855			-94.1	-92.9	35	33		0.0650			
	900			-95.6	-95.0	31	33		0.0840			
	905			-95.2	-95.5	50	40		0.0490			
	910			-95.9	-95.7	47	47		0.3000			
	915			-94.9	-95.5	50	45		0.4900			
	920			-95.6	-95.2	50	41		0.3100			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
47	1005	2400	24	-92.5	-92.6	39	34	GSC4	0.0330	NONE		
	1010			-94.8	-94.8	40	40		0.1900			
	1015			-95.4	-96.3	46	45		0.4400			
	1020			-95.2	-95.4	44	46		0.1600			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
48	1105	2400	24	-94.8	-93.1	43	44	GSC4	0.0180	NONE		
	1110			-90.6	-91.9	31	32		0.0120			
	1115			-93.6	-93.4	28	22		0.0430			
	1120			-93.3	-94.6	37	35		0.0920			
	1125			-95.5	-96.3	37	35		0.6500			
	1130			-95.1	-94.8	34	32		0.4000			
	1135			-97.1	-95.1	32	27		0.2230			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
49	1405	2400	24	-92.6	-95.7	31	26	FRED	0.0450	NONE		
	1410			-90.7	-93.9	36	34		0.0260			
	1415			-89.8	-91.8	36	39		0.0170			
	1420			-89.0	-92.8	25	21		0.0470			
	1425			-91.5	-94.4	41	34		0.0088			
	1430			-88.8	-92.7	35	26		0.0085			
	1435			-90.4	-93.4	48	36		0.0530			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
52	1620	2400	24	-97.0	-100.0	79	79	GSC4	0.1800	NONE		
	1625			-95.3	-98.0	68	58		0.1750			
	1630			-94.8	-98.8	69	61		0.1500			
	1635			-95.9	-99.0	75	68		0.1000			
	1640			-96.0	-99.4	72	66		0.0960			
	1645			-95.0	-97.2	83	75		0.1300			
	1650			-94.5	-97.1	82	71		0.0360			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
62	1455	2400	24	-93.3		21		GSC4	0.1547	NONE		
	1500			-94.3		31			0.1629			
	1505			-95.2		49			0.1295			
	1510			-91.7		39			0.2378			
	1515			-94.2		60			0.2748			
	1520			-93.5		63			0.1790			
	1525			-93.4		55			0.1630			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
63	1550			-91.5		27		NONE		NONE		
	1555			-89.4		20						
	1600			-83.2		14						
	1605			-83.2		22						
	1610			-81.4		22						
	1615			-82.6		29						
	1620			-85.8		14						

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
64	1105	1200	24	-85.8		16		GSC4	0.0000	NONE		
	1110			-86.7		22			0.0000			
	1115			-87.6		32			0.0000			
	1120			-84.6		29			0.0000			
	1130			-91.0		23			0.0000			
	1135			-91.4		27			0.0000			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
65	1155	1200	24	-88.0		28		GSC4	0.0000	NONE		
	1200			-90.2		25			0.0000			
	1205			-92.3		39			0.0000			
	1210			-90.2		33			0.0000			
	1215			-88.3		31			0.0000			
	1220			-90.2		25			0.0000			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
66	1510	2400	24	-93.5		58		GSC4	0.2900	NONE		
	1515			-92.1		46			0.1350			
	1520			-94.3		48			0.2220			
	1525			-96.1		64			0.2910			
	1530			-95.8		71			0.2870			
	1535			-92.5		38			0.1500			
	1540			-91.5		41			0.1200			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
67	1605	2400	24	-93.7		54		GSC4	0.3230	NONE		
	1610			-93.8		52			0.2340			
	1615			-95.4		52			0.3640			
	1620			-94.5		60			0.0790			
	1625			-92.8		67			0.1460			
	1630			-91.8		61			0.1630			
	1635			-93.1		44			12.2400			NO SYNCH
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
68	1035	1200	24	-90.8	-87.9	19	22	GSC4	0.1430	NONE		
	1040			-93.2	-90.5	24	22		0.0860			
	1045			-95.7	-92.2	29	27		0.1460			
	1050			-95.7	-91.6	31	30		0.0750			
	1055			-93.7	-91.4	23	28		0.2030			
	1100			-92.3	-90.1	33	25		0.0890			
	1105			-96.4	-93.5	30	29		0.5130			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
69	1135	1200	24	-91.3	-88.1	23	27	GSC4	0.0060	NONE		
	1140			-87.8	-84.8	22	15		0.0430			
	1145			-92.5	-89.5	26	20		0.1390			
	1150			-88.8	-92.0	23	21		0.3560			
	1155			-95.7	-93.5	31	32		0.2200			
	1200			-95.7	-92.8	42	33		0.1320			
	1205			-95.7	-93.5	37	29		0.3630			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
70	1340	2400	24	-94.7	-92.4	30	19	GSC4	0.3790	NONE		
	1350			-92.4	-90.0	27	27		0.2640			
	1355			-94.0	-91.3	15	22		0.2240			
	1400			-94.3	-90.3	21	27		0.2290			
	1405			-94.1	-91.0	14	13		0.2460			
	1410			-93.3	-90.8	30	29		0.3780			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
71	1435	2400	24	-95.2	-95.5	24	23	GSC4	0.6110	NONE		
	1440			-94.5	-94.4	21	19		0.5230			
	1445			-96.2	-95.4	21	22		0.4860			
	1450			-96.9	-96.4	29	24		1.1550			
	1455			-95.4	-94.7	33	33		0.3610			
	1500			-94.7	-94.6	32	30		0.2470			
	1505			-93.7	-92.7	26	27		0.3480			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
72	1525	1200	24	-94.2	-93.5	28	21	GSC4	0.1440	NONE		
	1530			-96.1	-95.1	22	22		0.4010			
	1535			-95.4	-94.9	30	24		0.1770			
	1540			-95.7	-95.5	34	27		0.2590			
	1545			-95.0	-94.1	22	23		0.1740			
	1550			-94.4	-93.7	27	23		0.1350			
	1555			-95.2	-93.5	26	25		0.3500			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
73	1005	1200	24	-87.1	-88.6	77	85	GSC4	0.0110	NONE		
	1010			-86.9	-87.6	81	75		0.0100			
	1015			-87.6	-89.8	79	78		0.0030			
	1020			-87.1	-88.2	85	74		0.0060			
	1025			-87.1	-87.5	78	66		0.0020			
	1030			-88.8	-90.0	83	66		0.0080			
	1035			-88.5	-89.3	74	85		0.0090			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
74	1055	1200	24	-87.6	-89.3	64	66	GSC4	0.0005	NONE		
	1100			-87.7	-88.0	66	64		0.0010			
	1105			-86.9	-88.0	75	65		0.0030			
	1115			-87.6	-89.5	82	73		0.0340			
	1120			-88.2	-89.0	89	79		0.0003			
	1125			-88.2	-89.0	94	79		0.0005			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
75	1150	1200	24	-85.8	-86.0	85	77	GSC4	0.0005	NONE		
	1155			-87.0	-87.4	87	85		0.0005			
	1200			-85.8	-87.3	94	88		0.0030			
	1205			-85.1	-86.9	87	86		0.0110			
	1210			-86.3	-87.8	79	88		0.0110			
	1215			-87.3	-87.9	90	90		0.0090			
	1220			-88.4	-87.8	92	90		0.0030			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
76	1320	1200	24	-83.4	-84.5	106	89	GSC4	0.0010	NONE		
	1325			-81.8	-83.5	89	92		0.0000			
	1330			-81.6	-83.5	105	97		0.0000			
	1335			-82.5	-84.5	90	92		0.0290			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
77	1445	1200	24		-71.2		53	GSC4	0.0000	NONE		
	1450				-69.8		53		0.0000			
	1455				-72.0		50		0.0000			
	1500				-69.0		41		0.0000			
	1510				-73.7		39		0.0020			
	1515				-68.2		39		0.0003			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
78	1540	1200	24		-69.0		38	GSC4	0.0000	NONE		
	1545				-69.2		32		0.0000			
	1550				-76.0		36		0.0000			
	1555				-75.9		36		0.0000			
	1600				-79.2		52		0.0000			
	1605				-71.7		48		0.0000			
	1610				-71.3		49		0.0000			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
79	1535	1200	24	-78.6	-75.8	40	37	GSC4	0.0006	NONE		
	1540			-80.2	-78.4	58	53		0.0090			
	1545			-81.2	-79.4	56	50		0.0400			
	1550			-80.1	-78.8	47	50		0.0000			
	1555			-81.7	-79.9	50	52		0.0020			
	1600			-81.5	-79.3	41	46		21.9860			NO SYNCH
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
80	1625	1200	24	-79.4	-77.2	41	43	GSC4	0.0006	NONE		
	1630			-79.7	-76.7	54	50		0.0340			
	1635			-80.7	-77.5	65	57		0.0060			
	1640			-80.8	-77.9	56	51		0.0020			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
81	1745	1200	24	-85.1	-81.9	76	71	GSC4	0.0020	NONE		
	1750			-82.9	-81.3	72	69		0.0006			
	1755			-83.8	-82.2	71	63		0.0060			
	1800			-84.0	-81.9	78	84		0.0300			
	1810			-82.8	-79.9	79	71		0.0000			
	1815			-82.0	-80.3	78	74		0.0020			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
82	1835	1200	24	-77.2	-78.3	68	63	GSC4	0.0003	NONE		
	1840			-76.2	-79.5	65	53		0.0008			
	1845			-77.5	-78.7	48	57		0.0000			
	1850			-77.6	-78.6	53	47		0.0020			
	1855			-77.1	-78.4	48	48		0.0003			
	1900			-76.8	-77.7	49	47		0.0000			
	1905			-77.6	-78.6	59	44		0.0006			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
83	1940	1200	24	-74.8	-75.6	42	27	GSC4	0.0003	NONE		
	1945			-75.5	-76.2	46	35		0.0030			
	1950			-75.4	-76.5	55	40		25.0430			NO SYNCH
	1955			-75.4	-77.1	46	52		19.6220			NO SYNCH
	2000			-75.9	-77.5	45	40		0.0030			
	2005			-77.4	-78.3	60	46		0.0020			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
84	1420				-73.4		17	NONE		NONE		
	1425				-71.5		14					
	1430				-74.6		17					
	1435				-71.3		13					
	1440				-75.8		21					
	1445				-72.2		20					
	1450				-74.6		13					

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
85	1530				-75.7		16	NONE		NONE		
	1535				-78.6		12					
	1540				-78.2		16					
	1545				-75.3		13					
	1550				-75.5		13					
	1555				-76.4		10					
	1600				-74.6		11					

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
88	1420			-84.5	-84.0	15	16	NONE		NONE		
	1425			-81.6	-83.7	14	11					
	1430			-79.2	-80.9	11	12					
	1435			-80.2	-81.7	14	11					
	1440			-77.4	-79.5	9	11					
	1445			-81.5	-82.2	14	13					
	1450			-82.4	-85.9	12	12					

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
89	1530			-83.5	-83.7	19	15	NONE		NONE		
	1535			-82.8	-83.8	15	17					
	1540			-81.3	-82.0	8	8					
	1545			-82.7	-84.5	23	16					
	1550			-82.6	-83.1	18	16					
	1555			-81.5	-81.9	18	21					
	1600			-82.3	-82.3	12	11					

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
90	1640			-79.1	-81.1	18	15	NONE		NONE		
	1645			-77.0	-79.0	15	15					
	1650			-78.1	-81.9	12	14					
	1655			-80.1	-80.5	17	15					
	1700			-79.4	-81.5	9	19					
	1705			-80.3	-82.2	14	16					
	1710			-81.0	-81.8	15	12					

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
91	1750			-81.0	-79.9	9	9	NONE		NONE		
	1755			-80.8	-81.0	16	14					
	1800			-79.3	-79.8	10	13					
	1805			-80.5	-81.1	13	11					
	1810			-80.0	-81.6	16	17					
	1815			-80.9	-81.0	14	15					
	1820			-80.9	-82.0	15	15					

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
92	1020			-88.1	-89.7	22	21	NONE		NONE		
	1025			-89.4	-90.6	22	23					
	1030			-89.6	-91.5	23	20					
	1035			-89.6	-91.1	24	21					
	1040			-89.2	-90.9	25	25					
	1045			-85.9	-88.6	19	20					
	1050			-88.6	-90.2	33	28					

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
93	1350			-82.6	-84.3	22	26	NONE		NONE		
	1355			-83.2	-84.1	23	19					
	1400			-82.8	-84.5	20	17					
	1405			-84.5	-85.6	24	19					
	1410			-83.6	-85.0	16	20					
	1415			-82.8	-84.7	27	20					
	1420			-84.6	-86.0	12	17					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
94	1455	2400	24	-80.2	-81.9	27	35	GSC4	0.0110	NONE		
	1500			-77.5	-80.3	24	30		0.0590			
	1505			-80.2	-81.7	18	26		0.0011			
	1510			-77.6	-78.7	20	18		0.0290			
	1515			-78.5	-80.0	43	23		0.0170			
	1520			-80.1	-81.0	20	26		0.0011			
	1525			-78.5	-80.5	38	28		0.0420			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
96	1650	1200	24	-92.1	-90.0	32	33	GSC4	0.0058	NONE		
	1655			-91.4	-92.0	29	27		0.0003			
	1700			-91.5	-88.0	23	27		0.0330			
	1705			-91.2	-86.9	28	31		0.0450			
	1710			-92.1	-89.1	37	39		0.0150			
	1715			-89.4	-86.7	30	31		0.0970			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
99	1750	1200	24	-92.7	-89.8	32	38	GSC4	0.0000	NONE		
	1755			-91.2	-89.6	37	39		0.0050			
	1800			-90.8	-89.4	27	31		0.0000			
	1805			-91.7	-89.5	40	37		0.0440			
	1810			-92.2	-89.6	48	37		0.0060			
	1815			-92.4	-89.7	33	32		0.0060			
	1820			-92.6	-90.1	46	41		0.0330			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
100	1935	1200	24	-98.3	-97.5	37	31	GSC4	16.0700	NONE		NO SYNCH
	1940			-98.7	-98.5	48	32		0.3300			
	1945			-99.0	-97.8	42	44		0.1200			
	1950			-99.3	-98.1	45	35		0.4200			
	1955			-98.2	-98.0	46	39		0.2800			
	2000			-99.0	-98.2	43	44		0.4200			
	2005			-99.2	-98.5	44	40		0.2500			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
104	1535	1200	24	-93.3	-90.7	21	11	GSC4	0.0000	NONE		
	1540			-91.5	-94.7	17	16		0.0000			
	1545			-91.1	-86.3	12	20		0.0000			
	1550			-93.3	-94.6	17	16		0.0000			
	1555			-93.3	-87.8	14	18		0.0000			
	1600			-87.2	-87.9	10	14		0.0000			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
105	1625	1200	24	-97.7	-96.5	45	29	GSC4	0.0000	NONE		
	1630			-96.8	-97.3	25	19		0.0000			
	1635			-92.2	-92.2	25	25		0.0000			
	1640			-96.0	-95.9	28	28		0.0000			
	1645			-95.5	-94.0	24	19		0.0000			
	1650			-91.7	-94.0	17	15		0.0000			
	1655			-93.0	-95.2	12	12		0.0000			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
106	1715	1200	24	-99.3	-97.6	17	21	GSC4	0.0000	NONE		
	1720			-99.3	-97.3	25	16		0.0000			
	1725			-99.0	-98.8	26	24		0.0000			
	1730			-100.2	-98.8	29	30		0.0000			
	1735			-99.9	-99.4	33	18		0.0000			
	1740			-98.9	-98.6	22	24		0.0000			
	1745			-97.7	-96.9	24	22		0.0000			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
107	1835			-99.2	-97.8	27	19	NONE		NONE		
	1840			-100.3	-100.2	20	15					
	1845			-100.1	-99.1	24	16					
	1850			-97.0	-96.2	16	22					
	1855			-99.3	-98.1	14	16					
	1900			-96.4	-95.7	17	18					
	1905			-96.1	-94.9	21	19					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
108	1935			-96.2	-96.1	42	36	NONE		NONE		
	1940			-95.1	-92.4	29	24					
	1945			-94.7	-95.2	44	24					
	1950			-96.3	-96.1	38	44					
	1955			-98.7	-96.4	51	33					
	2000			-96.1	-95.5	50	34					
	2005			-94.9	-94.2	39	41					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
109	2025			-97.0	-96.2	28	34	NONE		NONE		
	2030			-99.3	-98.4	30	32					
	2035			-97.2	-96.7	40	44					
	2040			-95.2	-95.0	38	35					
	2045			-97.8	-97.3	40	37					
	2050			-97.3	-96.4	46	49					
	2055			-97.8	-97.3	45	44					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
110	2115			-97.8	-97.1	41	40	NONE		NONE		
	2120			-99.3	-98.9	34	38					
	2125			-98.2	-97.3	37	38					
	2130			-98.8	-98.2	32	33					
	2135			-99.4	-98.4	30	27					
	2140			-103.0	-102.8	38	44					
	2145			-104.8	-103.5	37	31					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
112	1615	1200	24	-87.5	-86.7	25	23	GSC4	0.0000	NONE		
	1620			-87.5	-87.3	18	23		0.0000			
	1625			-87.6	-87.7	20	14		0.0000			
	1630			-83.1	-82.8	23	29		0.0000			
	1635			-81.1	-81.2	14	15		0.0000			
	1640			-85.6	-84.4	19	14		0.0000			
	1645			-87.9	-86.7	42	38		0.0000			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
113	1025	1200	24	-90.5	-92.1	22	19	GSC4	0.0003	NONE		
	1030			-87.6	-90.5	21	23		0.0044			
	1035			-89.2	-90.1	24	18		0.0003			
	1040			-87.3	-88.5	23	22		0.0003			
	1045			-81.9	-84.6	12	13		0.0008			
	1050			-87.4	-88.7	46	37		0.0456			
	1055			-78.0	-80.8	39	47		0.0380			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
114	1150	1200	24	-81.0	-84.1	22	18	GSC4	0.0000	NONE		
	1155			-79.4	-82.0	13	16		0.0000			
	1200			-81.6	-84.3	17	13		0.0000			
	1205			-77.6	-78.8	10	11		0.0178			
	1210			-78.5	-79.9	17	13		0.0000			
	1215			-76.2	-77.5	13	17		0.0133			
	1220			-78.5	-80.2	12	11		0.0039			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
115	1320			-93.1	-94.7	17	22	NONE		NONE		
	1325			-97.1	-98.4	34	29					
	1330			-98.2	-99.8	26	29					
	1335			-96.2	-97.8	36	32					
	1340			-98.0	-99.3	38	33					
	1345			-95.9	-97.0	26	22					
	1350			-92.8	-93.9	23	22					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
116	1420	1200	24	-91.4	-89.0	18	17	GSC4	0.0000	NONE		
	1425			-89.0	-87.7	13	21		0.0000			
	1430			-91.0	-89.2	18	14		0.0000			
	1435			-91.0	-91.4	16	11		0.0390			
	1440			-92.7	-90.0	11	17		0.0014			
	1445			-88.6	-86.9	13	12		0.0000			
	1450			-90.8	-88.8	15	12		0.0003			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
117	1520	1200	24	-91.5	-90.2	13	14	GSC4	0.0000	NONE		
	1525			-93.2	-91.1	10	13		0.0005			
	1530			-93.9	-92.3	17	20		0.0050			
	1535			-94.1	-92.5	17	15		0.0025			
	1540			-96.5	-96.0	13	13		0.0050			
	1545			-98.9	-96.8	22	19		0.0694			
	1550			-97.6	-93.3	12	15		0.1640			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
118	1615	1200	24	-96.8	-94.5	12	14	GSC4	0.0144	NONE		
	1620			-93.3	-89.8	13	9		0.0147			
	1625			-93.4	-90.7	13	10		0.0103			
	1630			-93.8	-93.6	12	15		0.0039			
	1635			-91.2	-90.9	16	16		0.0047			
	1640			-89.6	-88.7	10	16		0.0000			
	1645			-93.4	-90.3	11	10		0.0900			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
119	1025	1200	24	-100.6	-100.9	32	27	GSC4	0.3290	NONE		
	1030			-99.9	-101.0	99	55		0.5000			
	1035			-98.2	-100.6	67	67		0.4840			
	1040			-98.0	-99.2	137	124		0.3510			
	1045			-98.8	-99.2	100	117		0.306			
	1050			-100.2	-99.8	86	61		0.3270			
	1055			-100.6		36			0.4100			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
120	1125			-96.9	-95.2	37	30	NONE		NONE		
	1130			-96.4	-93.4	96	80					
	1135			-96.7	-95.2	55	58					
	1140			-92.5	-90.5	31	27					
	1145			-91.0	-90.6	33	20					
	1150			-92.4	-91.6	32	44					
	1155			-98.5	-96.3	38	26					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
121	950	2400	24	-90.6	-90.0	30	35	GSC4	0.0500	NONE		
	955			-86.6	-87.1	37	50		0.0320			
	1000			-92.8	-92.2	37	44		0.0175			
	1005			-92.8	-89.2	45	39		0.0015			
	1010			-87.5	-85.8	30	28		0.0330			
	1015			-86.2	-86.8	32	25		0.0022			
	1020			-90.9	-89.6	46	24		0.0360			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
122	1040	2400	24	-88.4	-88.6	38	36	GSC4	0.0390	NONE		
	1045			-91.3	-91.2	40	43		0.0120			
	1050			-93.8	-92.6	39	49		0.1050			
	1055			-94.5	-93.1	51	41		0.1440			
	1100			-91.8	-90.6	52	35		0.0870			
	1105			-93.0	-92.2	73	63		0.0740			
	1110			-94.5	-94.1	70	56		0.0980			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
123	1150	2400	24	-96.2	-95.2	71	58	GSC4	0.1760	NONE		
	1155			-96.2	-95.8	66	67		0.1470			
	1200			-97.2	-94.9	55	64		0.1920			
	1205			-95.9	-93.2	80	56		0.0890			
	1210			-92.4	-91.1	57	44		0.0450			
	1215			-88.5	-85.9	38	37		0.0360			
	1220			-90.6	-89.1	45	32		0.0175			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
124	1345			-78.2	-77.2	44	43	NONE		NONE		
	1350			-82.6	-81.7	44	42					
	1355			-79.5	-77.9	41	58					
	1400			-80.2	-77.4	29	25					
	1405			-81.5	-85.9	34	40					
	1410			-85.5	-83.9	70	40					
	1415			-87.1	-86.2	75	57					

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
125	1450			-84.4	-86.4	50	45	NONE		NONE		
	1455			-87.8	-89.1	58	54					
	1500			-87.0	-87.8	52	54					
	1505			-82.8	-84.5	38	39					
	1510			-84.6	-85.1	44	51					
	1515			-86.0	-88.0	33	39					
	1520			-85.9	-86.4	35	47					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
126	1540			-87.1	-87.8	53	54	NONE		NONE		
	1545			-89.5	-89.8	59	48					
	1550			-92.1	-93.2	63	48					
	1555			-94.0	-94.2	76	59					
	1600			-93.1	-94.4	95	78					
	1605			-94.9	-96.9	86	68					
	1610			-95.6	-96.4	80	72					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
127	1625			-94.5	-95.3	85	77	NONE		NONE		
	1630			-92.6	-94.6	69	68					
	1635			-93.1	-94.1	73	77					
	1640			-94.0	-94.8	68	68					
	1645			-95.4	-96.1	106	76					
	1650			-94.2	-94.9	85	77					
	1655			-94.2	-95.7	101	74					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
128	945	1200	24	-84.9	-84.3	97	78	GSC4	0.0014	NONE		
	950			-87.6	-86.5	104	100		0.0159			
	955			-86.5	-85.0	98	78		0.5320			
	1000			-86.0	-83.9	73	74		0.0042			
	1005			-86.2	-85.1	93	82		0.0108			
	1010			-85.5	-83.9	113	90		0.0428			
	1015			-85.2	-84.0	95	89		0.0006			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
129	1035	1200	24	-83.2	-81.8	72	72	GSC4	0.0370	NONE		
	1040			-80.1	-78.6	60	48		0.0006			
	1045			-82.7	-81.9	69	49		0.0420			
	1050			-82.4	-80.5	53	41		0.0019			
	1055			-80.2	-79.6	56	56		0.0031			
	1100			-82.4	-80.2	62	55		0.0220			
	1105			-82.1	-80.2	55	50		0.0036			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
130	1130	1200	24	-79.6	-77.5	45	28	GSC4	0.0095	NONE		
	1135			-76.5	-75.0	19	31		0.0033			
	1140			-79.6	-78.6	41	30		0.0140			
	1145			-77.6	-76.4	33	34		0.0306			
	1150			-76.0	-75.9	35	43		0.0111			
	1155			-81.1	-78.7	40	49		0.0450			
	1200			-81.5	-79.4	45	42		0.0400			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
131	1255			-77.7	-77.0	52	49	NONE		NONE		
	1300			-79.8	-78.7	77	65					
	1305			-79.6	-79.5	94	88					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
132	1445			-77.4	-80.2	52	52	NONE		NONE		
	1450			-76.8	-79.6	55	52					
	1455			-79.1	-81.8	81	78					
	1500			-77.5	-80.0	70	66					
	1505			-79.1	-81.3	60	60					
	1510			-81.2	-84.1	73	62					
	1515			-78.9	-81.9	65	63					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
133	1555			-77.9	-81.1	82	72	NONE		NONE		
	1600			-76.8	-80.0	73	64					
	1605			-79.0	-82.3	83	70					
	1610			-79.4	-82.0	70	59					
	1615			-76.1	-78.7	49	55					
	1620			-78.8	-81.6	69	63					
	1625			-75.5	-78.1	52	53					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
134	1640			-75.0	-78.4	67	68	NONE		NONE		
	1645			-73.4	-76.3	63	57					
	1650			-75.0	-77.5	50	53					
	1655			-76.2	-78.2	81	62					
	1700			-76.7	-79.1	74	67					
	1705			-76.0	-78.3	71	64					
	1710			-75.2	-78.1	61	60					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
135	1125	2604	24	-84.2	-82.7	11	15	FRED	0.0000	NONE		
	1130			-81.4	-80.8	12	9		0.0034			
	1135			-82.2	-83.9	11	16		0.0002			
	1140			-81.8	-83.0	9	12		0.0017			
	1145			-84.7	-85.6	36	19		0.0024			
	1150			-86.3	-85.7	16	15		0.0038			
	1155			-85.3	-84.7	14	12		0.0309			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
136	1350	2604	24	-86.6	-85.1	15	19	FRED	0.0032	NONE		
	1355			-86.1	-84.7	16	18		0.0059			
	1400			-85.8	-83.3	17	19		0.0051			
	1405			-81.4	-79.4	14	16		0.0014			
	1410			-81.4	-78.7	14	11		0.0141			
	1415			-81.4	-80.1	16	17		0.0052			
	1420			-81.4	-81.0	14	15		0.0008			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
137	1505	2400	24	-82.0	-79.4	11	11	OSC4	0.0220	NONE		
	1510			-79.6	-79.8	32	29		0.0260			
	1515			-76.8	-75.4	56	49		0.0420			
	1520			-75.3	-75.0	10	8		0.0300			
	1525			-77.4	-75.5	9	12		0.0597			
	1530			-75.8	-75.2	8	11		0.0703			
	1535			-73.8	-73.8	8	9		0.0450			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
138	1555	2400	24	-76.7	-76.9	12	15	6SC4	0.0410	NONE		
	1600			-75.9	-76.4	11	8		0.1200			
	1605			-75.6	-77.4	11	10		0.0300			
	1610			-75.3	-76.4	12	13		0.0620			
	1615			-76.6	-76.7	10	7		0.0950			
	1625			-76.2	-76.5	8	6		0.0310			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
139	1655			-79.8	-79.7	11	9	NONE		NONE		
	1700			-76.0	-77.1	7	7					
	1705			-79.6	-79.4	14	11					
	1710			-80.3	-79.5	9	10					
	1715			-80.2	-78.2	14	10					
	1720			-81.0	-79.7	10	7					
	1725			-85.1	-85.3	19	13					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
141	1605			-84.6	-83.0	35	34	NONE		NONE		LOOP
	1610			-83.8	-80.3	25	21					
	1615			-85.0	-85.0	27	29					
	1620			-84.2	-80.6	27	21					
	1625			-88.5	-86.6	26	33					
	1630			-85.1	-83.0	27	34					
	1635			-89.8	-86.1	26	27					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
142	1245			-74.4	-72.4	12	11	NONE		NONE		LOOP
	1250			-74.8	-73.6	15	14					
	1255			-73.6	-74.1	17	10					
	1300			-72.2	-72.8	8	9					
	1305			-73.5	-75.0	12	10					
	1310			-73.5	-72.4	16	12					
	1315			-73.7	-73.5	15	15					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
145	1105			-89.4	-93.2	19	20	NONE		NONE		LOOP
	1110			-88.7	-93.0	22	22					
	1115			-88.8	-94.1	23	23					
	1120			-89.4	-94.9	25	20					
	1125			-90.6	-94.5	20	27					
	1130			-89.5	-93.3	19	23					
	1135			-90.0	-94.4	22	21					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
146	1205			-88.8	-95.4	16	19	NONE		NONE		LOOP
	1210			-90.1	-95.9	16	17					
	1215			-89.2	-94.5	22	19					
	1220			-89.9	-95.6	26	24					
	1225			-89.5	-95.9	19	27					
	1230			-89.3	-94.8	22	24					
	1235			-86.9	-93.4	23	21					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
147	1305			-90.0	-89.8	19	16	NONE		NONE		LOOP
	1310			-87.8	-93.8	25	18					
	1315			-83.6	-88.0	16	10					
	1320			-86.4	-91.4	17	22					
	1325			-85.0	-90.3	22	19					
	1330			-80.1	-85.2	16	24					
	1335			-81.0	-85.7	19	17					

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
148	1405			-86.8	-84.0	13	10	NONE		NONE		LOOP
	1410			-78.4	-77.8	8	10					
	1415			-77.7	-77.0	7	11					
	1420			-81.2	-80.3	17	10					
	1425			-80.7	-80.5	10	14					
	1430			-80.4	-80.5	13	10					
	1435			-81.2	-80.5	8	10					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
149	1505			-80.5	-80.7	13	11	NONE		NONE		LOOP
	1510			-82.9	-81.4	13	9					
	1515			-82.0	-80.0	13	11					
	1520			-84.1	-83.4	9	11					
	1525			-86.1	-86.1	9	9					
	1530			-89.1	-90.0	18	13					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
150	1235	2400	24	-93.5	-91.3	49	45	GSC4	3.4070	NONE		LOOP
	1240			-95.7	-93.3	43	53		14.6400			
	1245			-95.4	-91.9	60	62		8.7700			
	1250			-96.3	-92.8	45	49		11.1200			
	1255			-92.8	-88.9	39	45		2.6900			
	1300			-92.1	-88.1	34	30		2.0500			
	1305			-90.5	-87.2	31	32		1.4100			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
151	1325	2400	24	-93.5	-90.0	37	40	GSC4	5.1000	NONE		LOOP
	1330			-94.4	-90.1	50	44		4.9200			
	1335			-94.2	-89.2	46	48		12.6100			
	1340			-91.8	-88.0	40	32		9.3000			
	1345			-91.5	-87.6	41	35		2.5100			
	1350			-92.4	-88.2	42	39		7.1600			
	1355			-93.0	-89.3	38	42		6.9100			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
152	1415	2400	24	-90.4	-86.5	47	53	GSC4	0.6600	NONE		LOOP
	1420			-91.0	-86.7	57	53		0.3600			
	1425			-91.3	-86.5	49	43		1.1800			
	1430			-90.5	-86.4	49	42		1.0400			
	1435			-86.5	-83.5	44	39		0.1070			
	1440			-89.5	-85.5	48	43		0.1950			
	1445			-89.8	-86.0	45	42		0.3200			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
153	1505	2400	24	-90.5	-90.7	48	50	GSC4	0.8720	NONE		LOOP
	1510			-92.1	-91.2	44	45		2.4500			
	1515			-90.4	-90.5	48	53		1.1600			
	1520			-90.0	-90.3	44	42		1.0800			
	1525			-90.3	-90.7	44	45		1.0900			
	1530			-92.5	-92.3	84	87		1.5800			
	1535			-88.2	-88.4	40	45		0.9000			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
154	1615	2400	24	-96.1	-95.7	54	51	GSC4	0.2880	NONE		LOOP
	1620				-94.5		43		31.0500			
	1625			-95.4	-93.0	47	42		23.1900			
	1630			-93.4	-92.2	51	42		2.0200			
	1635			-90.5	-90.6	46	41		0.7100			
	1640			-93.7	-93.0	41	38		0.1300			
	1645			-90.2	-90.0	49	39		0.0780			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
155	1355	2400	24	-76.9	-79.7	13	15	GSC4	0.0068	NONE		LOOP
	1400			-76.4	-77.9	12	10		0.0093			
	1405			-76.5	-78.5	9	8		0.0049			
	1410			-77.0	-86.5	7	7		0.0000			
	1415			-75.0	-78.0	9	7		0.0004			
	1420			-74.5	-77.5	10	9		0.0670			
	1425			-78.7	-80.7	11	13		0.0012			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
156	1445	2400	24	-78.7	-80.7	8	9	GSC4	0.0110	NONE		LOOP
	1450			-80.0	-82.7	8	7		0.0520			
	1455			-78.4	-80.3	9	11		0.0019			
	1500			-83.0	-84.6	7	12		0.0250			
	1505			-80.0	-83.7	9	8		0.0480			
	1510			-77.5	-81.2	6	8		0.1030			
	1515			-84.7	-86.7	5	11		0.2780			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
157	1535	2400	24	-83.2	-85.3	14	12	GSC4	0.4900	NONE		LOOP
	1540			-77.0	-77.9	8	7		0.0004			
	1545			-74.5	-76.0	11	6		0.0980			
	1550			-76.1	-78.0	7	8		0.0170			
	1555			-78.8	-79.9	10	9		0.0520			
	1600			-80.1	-81.0	9	13		0.0740			
	1605			-83.0	-83.8	9	13		0.1420			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
158	1505	2400	24	-96.9	-91.2	36	28	GSC4	0.2630	NONE		
	1510			-98.0	-96.5	45	6		0.5280			
	1515			-99.0	-95.7	44	33		0.2050			
	1520			-99.9	-97.8	52	44		0.4190			
	1525			-98.4	-92.5	55	46		0.1180			
	1530			-97.6	-90.2	42	42		0.0088			
	1535			-97.4	-89.4	53	50		0.0660			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
159	1615	2400	24	-91.0	-95.8	33	22	GSC4	0.0350	NONE		
	1620			-87.5	-93.2	87	73		0.0272			
	1625			-93.7	-93.9	40	49		0.0854			
	1630			-92.1	-92.5	25	30		0.0968			
	1635			-89.0	-90.3	26	28		0.0156			
	1640			-89.9	-91.9	29	25		0.0340			
	1645			-88.5	-94.1	22	18		0.0115			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
162	1535	2400	24	-87.4	-89.5	46	37	GSC4	0.0035	NONE		
	1540			-86.9	-90.0	42	38		0.0008			
	1545			-86.7	-87.8	40	38		0.0003			
	1550			-84.4	-86.3	35	27		0.0003			
	1555			-85.8	-86.8	27	22		0.0035			
	1600			-84.8	-86.7	44	46		0.1020			
	1605			-84.0	-86.6	34	31		0.0747			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
163	1050	2400	24	-95.4		15		OSC4	0.7370	NONE		
	1055			-95.6		14			0.5740			
	1100			-96.9		12			1.1290			
	1105			-93.8		40			0.8820			
	1110			-95.7		12			4.4520			
	1115			-97.5		13			1.6100			
	1120			-94.7		12			0.6230			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
164	1250	2400	24	-99.7	-96.0	15	14	OSC4	0.1640	NONE		
	1255			-100.3	-95.9	16	18		0.2190			
	1300			-99.9	-95.2	13	17		0.1210			
	1305			-101.2	-97.2	18	14		0.0840			
	1310			-100.3	-96.4	24	18		0.0347			
	1315			-97.5	-94.5	23	20		0.0128			
	1320			-98.0	-95.8	22	17		0.1530			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
165	1350	2400	24	-96.8	-95.2	17	13	OSC4	0.0144	NONE		
	1355			-97.0	-95.5	23	18		0.0300			
	1400			-96.4	-95.1	31	23		0.0139			
	1405			-96.4	-95.8	21	17		0.1290			
	1410			-96.6	-95.9	19	21		0.1370			
	1415			-98.7	-96.1	23	20		0.1740			
	1420			-98.2	-97.2	24	19		0.0815			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
166	1520	2400	24	-89.6	-89.5	35	38	OSC4	0.0021	NONE		
	1525			-93.0	-91.8	28	27		0.0018			
	1530			-91.0	-89.9	31	31		0.0125			
	1535			-92.0	-91.1	33	24		0.0044			
	1540			-88.8	-88.4	28	27		0.0003			
	1545			-89.7	-87.7	26	28					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
169	1550			-91.9	-91.0	47	37	NONE		NONE		
	1555			-92.6	-90.7	22	25					
	1600			-95.0	-94.0	24	17					
	1605			-93.9	-92.8	29	25					
	1610			-92.2	-92.2	47	50					
	1615			-92.8	-91.0	47	32					
	1620			-91.4	-91.4	22	25					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
170	1650	2400	24	-91.4	-91.4	28	26	OSC4	0.0001	NONE		
	1655			-92.0	-91.0	25	30		0.0089			
	1700			-85.0	-84.5	27	23		0.0000			
	1705			-86.8	-86.1	29	26		0.0071			
	1710			-85.2	-85.5	30	35		0.0001			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
173	1955	2400	24	-90.4	-90.1	20	15	OSC4	0.0010	NONE		
	2000			-87.8	-88.6	19	24		0.0128			
	2005			-87.0	-86.2	20	17		0.0012			
	2010			-89.7	-90.0	20	20		0.0250			
	2015			-89.0	-88.9	23	16		0.0189			
	2020			-86.8	-86.2	20	16					
	2025			-88.4	-88.2	21	21					

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
174	2105	2400	24	-89.7	-89.0	24	23	GSC4	0.0021	NONE		
	2110			-92.4	-91.0	23	21		0.0001			
	2115			-89.2	-87.5	22	18		0.0017			
	2120			-90.2	-90.7	18	22		0.0051			
	2125			-86.3	-85.5	19	15		0.0025			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
176	1120	2400	24	-81.0	-82.2	35	30	GSC4	0.0000	NONE		
	1125			-80.2	-82.0	36	36		0.0000			
	1130			-82.0	-83.3	30	30		0.0001			
	1135			-81.2	-82.7	29	38		0.0000			
	1140			-80.5	-82.5	36	26		0.0000			
	1145			-81.5	-83.4	33	32		0.0000			
	1150			-82.3	-83.4	36	36		0.0000			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
179	950	2400	24	-86.0	-86.7	30	21	GSC4	0.0001	NONE		
	955			-86.5	-88.1	36	26		0.0014			
	1000			-86.8	-88.5	35	27		0.0011			
	1005			-86.5	-86.1	29	20		0.0124			
	1010			-85.5	-86.6	27	30		0.0000			
	1015			-84.2	-85.1	31	29		0.0000			
	1020			-85.0	-86.1	32	32		0.0010			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
180	1150	2400	24	-77.8	-79.5	27	28	GSC4	0.0000	NONE		
	1155			-78.8	-80.0	29	25		0.0024			
	1200			-76.9	-74.8	23	29		0.0000			
	1205			-83.4	-83.3	20	20		0.0000			
	1210			-85.2	-85.3	31	23		0.0001			
	1215			-86.2	-86.7	28	31		0.0106			
	1220			-85.4	-85.4	31	33		0.0032			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
181	1150	2400	24	-81.0	-81.0	27	26	GSC4	0.0003	NONE		
	1155			-80.5	-80.1	28	31		0.0000			
	1200			-78.3	-78.5	29	25		0.0003			
	1205			-77.5	-78.4	24	20		0.0000			
	1210			-72.9	-73.8	20	17		0.0006			
	1215			-75.6	-75.3	25	18		0.0000			
	1220			-77.2	-77.7	16	21		0.0000			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
182	1250	2400	24	-92.5	-93.8	25	21	GSC4	0.0165	NONE		REC PAD
	1255			-92.5	-92.3	30	22		0.0975			
	1300			-93.5	-93.8	24	29		0.0047			
	1305			-95.2	-94.8	23	22		0.0113			
	1310			-93.1	-92.6	28	29		0.0029			
	1315			-92.2	-91.5	22	25		0.0040			
	1320			-93.8	-94.9	30	30		0.0135			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
183	1350	2400	24	-93.5	-93.5	30	24	GSC4	0.0142	NONE		REC PAD
	1355			-94.1	-95.2	24	25		0.0008			
	1400			-95.6	-95.0	24	22		0.1450			
	1405			-95.4	-95.8	26	22		0.0299			
	1410			-94.5	-95.2	24	18		0.0253			
	1415			-95.2	-95.0	26	26		0.0215			
	1420			-93.7	-94.0	31	27		0.0782			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
185	1245	2400	24	-92.4	-91.1	15	16	GSC4	0.0000	NONE		
	1250			-93.2	-91.4	20	18		0.0494			
	1255			-93.7	-91.8	24	16		0.0079			
	1300			-94.3	-92.8	19	16		0.0054			
	1305			-95.8	-94.0	19	21		0.0010			
	1310			-95.8	-94.1	21	15		0.0144			
	1315			-94.4	-92.8	18	23		0.0439			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
186	1345	2400	24	-94.9	-95.4	115	116	GSC4	0.0389	NONE		
	1350			-95.1	-94.4	41	39		0.0012			
	1355			-97.6	-94.6	15	11		0.0768			
	1400			-98.7	-94.8	16	12		0.0322			
	1405			-96.9	-94.3	22	20		0.0870			
	1410			-95.4	-93.5	18	18		0.0475			
	1415			-97.1	-94.3	13	16		0.0307			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
187	1500	2400	24	-96.5	-95.3	27	19	GSC4	0.2430	NONE		
	1505			-96.7	-95.8	24	21		0.0633			
	1510			-96.6	-94.8	25	24		0.0500			
	1515			-94.8	-93.7	31	28		0.0075			
	1520			-93.2	-92.0	26	18		0.0243			
	1525			-95.8	-93.9	36	29		0.0246			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
188	1600	2400	24	-95.1	-95.1	31	25	GSC4	0.0672	NONE		
	1605			-96.7	-95.4	40	36		0.0751			
	1610			-97.8	-95.5	44	30		0.0383			
	1615			-97.6	-96.2	38	30		0.1790			
	1620			-96.8	-95.1	38	38		0.0508			
	1625			-96.3	-96.7	44	24		0.0493			
	1630			-97.7	-95.3	35	38		0.2170			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
189	1020	2400	24	-101.8	-102.6	29	8	GSC4	1.7900	NONE		
	1025			-103.0	-102.8	39	22		2.0800			
	1030			-100.6	-102.1	37	29		0.9490			
	1035			-101.3	-102.2	38	30		1.6600			
	1040			-103.0	-102.3	43	29		3.4500			
	1045			-103.0	-102.1	48	31		2.6500			
	1050			-103.1	-102.3	31	18		4.9900			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
190	1220	2400	24	-100.9	-99.9	33	21	GSC4	0.9370	NONE		
	1225			-99.9	-99.1	31	21		0.9510			
	1230			-99.3	-99.1	24	18		0.4190			
	1235			-99.0	-99.1	29	19		0.3940			
	1240			-101.5	-100.4	20	15		0.3920			
	1245			-100.0	-100.3	20	26		0.7570			
	1250			-98.8	-99.7	30	28		0.2580			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
191	1320	2400	24	-97.3	-101.0	31	23	GSC4	0.2810	NONE		
	1325			-97.4	-101.0	23	21		0.2490			
	1330			-98.1	-102.4	30	18		0.5650			
	1335			-98.3	-103.0	21	18		0.8950			
	1340			-98.2	-102.1	22	19		0.8940			
	1345			-97.7	-101.7	22	17		0.9510			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
192	1520	2400	24	-100.0		25		GSC4	2.8100	NONE		
	1525			-100.4	-103.0	25	17		1.4600			
	1530			-99.2	-103.0	23	18		1.4100			
	1535			-98.8	-102.4	23	23		1.2500			
	1540			-101.0	-103.4	23	11		2.3100			
	1545			-100.5	-103.7	23	10		2.7000			
	1550			-101.7		20			1.5600			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
193	950	2400	24	-96.3	-103.5	32	12	GSC4	1.1100	NONE		
	955			-97.3	-103.4	27	18		0.8910			
	1000			-97.4	-103.3	20	15		1.6200			
	1005			-97.2	-103.3	26	22		2.0700			
	1010			-97.3	-103.4	21	18		1.0300			
	1015			-96.2	-102.9	28	21		1.2700			
	1020			-97.4	-103.0	22	16		0.9250			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
194	1050	2400	24	-95.2	-101.9	23	18	GSC4	0.3010	NONE		
	1055			-94.4	-101.5	17	11		0.5210			
	1100			-94.3	-100.7	19	16		0.5010			
	1105			-101.7	-101.1	17	15		0.3340			
	1110			-93.7	-100.4	19	13		0.3810			
	1115			-101.7	-101.6	14	10		1.2500			
	1120			-92.5	-99.3	10	10		0.3570			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
198	1605	2400	24	-97.5	-102.5	22	23	GSC4	0.1430	NONE		
	1610			-97.3	-102.4	24	21		0.1070			
	1615			-97.4	-103.5	27	25		0.1500			
	1620			-96.0	-102.8	39	107		0.2280			
	1625			-101.1	-98.2	83	142		0.0800			
	1630			-96.9	-102.3	24	28		0.1590			
	1635			-97.1	-101.7	24	27		0.2390			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
200	1130	2400	24	-95.2		48		GSC4	40.1400	NONE		
	1135			-95.5		52			34.4500			
	1140			-95.2		45			39.8600			
	1145			-92.2		40			27.3500			
	1150			-94.6		25			1.6700			
	1155			-92.1		31			1.0200			
	1200			-97.3		20			3.1500			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
201	1415	2400	24	-100.1	-105.5	31	6	GSC4	2.0000	NONE		
	1420			-100.0	-105.3	40	25		0.7760			
	1425			-97.9	-104.7	37	24		0.5770			
	1430			-98.1	-104.0	43	27		0.3010			
	1435			-99.8	-104.5	29	17		0.7220			
	1440			-99.7	-105.1	29	19		0.5260			
	1445			-99.2	-105.6	42	28		0.8090			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
202	1515	2400	24	-99.3	-103.4	48	29	GSC4	0.5910	NONE		
	1520			-99.5	-103.1	34	23		0.9710			
	1525			-99.0	-103.0	37	22		0.4250			
	1530			-99.7	-103.1	37	25		1.3700			
	1535			-100.3	-103.4	32	21		0.9780			
	1540			-102.0	-104.8	29	17		1.1600			
	1545			-99.7	-103.3	32	25		0.6330			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
203	1620	2400	24	-100.5		37		GSC4	1.8200	NONE		
	1625			-99.6	-104.5	33	55		1.3700			
	1630			-100.6		31			1.7900			
	1635			-101.5		27			3.2200			
	1640			-100.1		40			0.6060			
	1645			-100.0		42			0.6140			
	1650			-98.5	-102.2	32	45		1.0600			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
204	1025	2400	24	-81.8	-89.2	13	13	GSC4	0.0000	NONE		
	1030			-81.5	-82.8	18	11		0.0000			
	1035			-86.1	-90.5	18	18		0.0019			
	1040			-88.0	-90.5	18	18		0.0000			
	1045			-82.5	-83.3	15	13		0.0000			
	1050			-82.5	-85.8	9	6		0.0028			
	1055			-88.9	-90.3	17	15		0.0033			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
205	1135	2400	24	-95.8	-95.7	9	6	GSC4	0.0169	NONE		
	1140			-95.8	-95.9	22	13		0.0226			
	1145			-92.8	-94.0	10	13		0.0129			
	1150			-92.9	-94.1	13	12		0.0049			
	1155			-89.0	-91.8	5	7		0.0003			
	1200			-89.0	-91.1	7	3		0.0922			
	1205			-95.6	-95.7	17	6		0.0736			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
206	1315	2400	24	-92.8	-94.0	11	9	GSC4	0.0025	NONE		
	1320			-92.2	-94.4	18	10		0.0451			
	1325			-92.7	-93.4	21	22		0.0111			
	1330			-95.0	-93.6	17	10		0.0411			
	1335			-98.5		21			0.0263			
	1340			-96.3	-95.7	26	16		0.0428			
	1345			-96.3		20			0.0696			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
207	1440	2400	24	-91.5	-93.4	21	25	GSC4	0.0012	NONE		
	1445			-90.1	-91.3	19	20		0.0015			
	1450			-91.2	-92.4	17	16		0.0000			
	1455			-92.3	-94.1	19	17		0.0056			
	1500			-91.1	-93.3	18	23		0.0099			
	1505			-91.0	-93.7	24	18		0.0000			
	1510			-88.4	-91.2	19	19		0.0100			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
208	1620	2400	24	-89.1	-91.0	29	33	GSC4	0.0057	NONE		
	1625			-88.6	-90.5	32	31		0.0003			
	1630			-88.8	-90.8	30	33		0.0007			
	1635			-88.4	-90.2	32	27		0.0003			
	1640			-87.7	-89.9	30	30		0.0036			
	1645			-88.6	-90.3	35	30		0.0190			
	1650			-88.7	-90.4	31	30		0.0037			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
209	1705	2400	24	-87.0	-89.5	32	33	GSC4	0.0000	NONE		
	1710			-86.9	-89.0	30	32		0.0003			
	1715			-87.5	-89.5	43	38		0.0007			
	1720			-84.2	-86.9	25	28		0.0007			
	1725			-86.5	-89.1	24	23		0.0000			
	1730			-87.1	-91.4	27	25		0.0025			
	1735			-86.7	-90.1	38	37		0.0000			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
210	1250	2400	24	-102.8	-104.1	9	13	GSC4	1.2300	NONE		
	1255			-103.3	-104.8	21	30		2.4000			
	1300			-102.9	-105.1	41	26		1.9200			
	1305			-103.3	-106.2	38	30		1.9000			
	1310			-101.5	-105.5	37	32		2.3500			
	1315			-100.7	-104.3	40	37		1.3300			
	1320			-101.6	-105.5	33	27		1.5000			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
211	1430	2400	24	-100.8	-104.1	36	35	GSC4	1.0100	NONE		
	1435			-100.5	-104.3	33	26		0.4520			
	1440			-99.4	-104.7	34	33		0.6540			
	1445			-98.7	-103.9	37	35		0.1710			
	1450			-98.1	-102.0	34	30		0.5560			
	1455			-97.8	-101.8	25	30		0.4070			
	1500			-99.2	-101.2	34	38		0.2170			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
212	1535	2400	24	-96.0	-99.8	29	20	GSC4	0.4570	NONE		
	1540			-95.7	-99.7	25	24		0.1380			
	1545			-95.7	-100.1	24	26		0.4550			
	1550			-95.7	-100.1	27	23		0.7660			
	1555			-95.0	-98.4	29	26		0.3790			
	1600			-95.2	-99.6	29	30		0.4440			
	1605			-95.9	-99.5	24	32		0.5180			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
213	1055	2400	24	-86.1	-87.8	18	19	GSC4	0.0000	NONE		
	1100			-85.8	-86.7	18	16		0.0010			
	1105			-85.2	-87.8	9	9		0.0008			
	1110			-84.0	-85.2	16	10		0.0000			
	1115			-85.0	-85.4	18	17		0.0000			
	1120			-83.0	-83.0	14	12		0.0008			
	1125			-83.0	-84.0	12	12		0.0014			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
214	1205	2400	24	-82.5	-81.2	17	17	GSC4	0.0001	NONE		
	1210			-81.0	-80.5	17	12		0.0003			
	1215			-79.1	-80.0	11	14		0.0057			
	1220			-79.1	-78.0	14	16		0.0007			
	1225			-78.7	-78.0	14	13		0.0000			
	1230			-81.0	-79.7	21	15		0.0006			
	1235			-78.3	-78.0	10	12		0.0000			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
215	1300	2400	24	-82.5	-82.4	14	9	GSC4	0.0014	NONE		
	1305			-77.9	-77.1	10	11		0.0008			
	1310			-78.4	-78.9	18	13		0.0001			
	1315			-76.8	-76.0	24	20		0.0000			
	1320			-76.7	-75.9	16	19		0.0000			
	1325			-77.3	-77.0	10	12		0.0037			
	1330			-79.3	-79.2	23	20		0.0019			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
216	1410	2400	24	-84.3	-87.7	20	9	GSC4	0.0486	NONE		REC PAD
	1415			-84.6	-87.4	8	10		0.0054			
	1420			-89.2	-91.0	13	10		0.0001			
	1425			-89.6	-90.0	9	14		0.0000			
	1430			-90.2	-91.9	15	10		0.0000			
	1435			-92.4	-94.4	17	13		0.0011			
	1440			-90.8	-93.3	19	16		0.0001			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
217	1510	2400	24	-72.9	-75.0	7	11	GSC4	0.0000	NONE		
	1515			-75.7	-77.2	7	7		0.0000			
	1520			-77.4	-77.4	10	10		0.0003			
	1525			-78.8	-80.2	13	13		0.0057			
	1530			-80.4	-83.0	19	16		0.0003			
	1535			-80.6	-82.0	14	14		0.0003			
	1540			-85.3	-87.0	11	16		0.0001			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
218	1315	2400	24	-75.4	-79.5	11	11	GSC4	0.0003	NONE		
	1320			-75.0	-79.7	12	13		0.0004			
	1325			-75.3	-79.5	14	24		0.0000			
	1330			-78.2	-83.2	18	13		0.0043			
	1335			-74.8		11			0.0000			
	1340			-71.5		10			0.0000			
	1345			-77.3		9			0.0000			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
219	1440	2400	24		-74.8		10	GSC4	0.0001	NONE		
	1445				-77.2		15		0.0296			
	1450				-77.3		12		0.0106			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
220	1535	2400	24	-93.7	-94.4	7	5	GSC4	0.0540	NONE		
	1540			-96.5	-100.6	9	6		2.0350			
	1545			-91.6	-94.5	7	4		0.8720			
	1550			-91.1	-93.7	13	9		0.2210			
	1555			-93.7	-96.8	9	9		0.4970			
	1600			-97.0	-99.1	7	3		3.4730			
	1605			-91.9	-93.6	5	5		1.3110			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
221	935			-100.5	-100.8	39	33	NONE		NONE		
	940			-101.0	-102.6	37	35					
	950			-100.2	-101.1	41	31					
	955			-100.3	-101.1	45	40					
	1000			-100.2	-100.0	37	45					
	1005			-98.0	-101.6	38	45					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
222	1105			-97.4	-103.1	28	17	NONE		NONE		
	1110			-100.5	-101.2	34	27					
	1115			-100.2	-102.2	35	43					
	1120			-99.3	-100.8	41	38					
	1125			-100.0	-102.8	45	43					
	1130			-98.9	-101.0	53	51					
	1135			-98.4	-100.6	55	54					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
223	1205			-98.0	-99.5	53	40	NONE		NONE		
	1210			-97.8	-99.2	56	60					
	1215			-98.5	-100.0	42	34					
	1220			-99.6	-101.4	37	33					
	1225			-96.6	-99.7	33	35					
	1230			-99.4	-100.9	31	27					
	1235			-99.8	-100.8	26	26					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
224	1335			-95.8	-96.2	28	27	NONE		NONE		
	1340			-96.4	-96.9	23	28					
	1345			-96.0	-96.2	29	33					
	1350			-96.2	-95.6	27	20					
	1355			-94.6	-95.2	25	23					
	1400			-94.9	-95.8	29	27					
	1405			-93.3	-93.5	21	25					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
225	1435			-99.7	-102.0	18	21	NONE		NONE		
	1440			-97.2	-103.0	26	23					
	1445			-97.5	-101.8	24	27					
	1450			-97.5	-103.5	34	36					
	1455			-97.8	-103.7	24	23					
	1500			-97.5	-102.9	23	22					
	1505			-97.4	-102.8	25	22					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
226	1540			-96.2	-99.3	22	18	NONE		NONE		
	1545			-94.2	-96.3	15	16					
	1550			-95.8	-92.5	14	13					
	1555			-91.2	-94.9	24	22					
	1600			-88.4	-91.8	14	12					
	1605			-91.5	-95.2	15	11					
	1610			-90.2	-94.1	19	10					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
227	1635			-95.0	-94.7	13	10	NONE		NONE		
	1640			-94.5	-97.2	17	21					
	1645			-95.2	-97.7	18	23					
	1650			-93.3	-96.1	22	26					
	1655			-93.3	-96.5	29	26					
	1700			-94.9	-97.0	31	22					
	1705			-93.4	-96.1	30	26					

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
228	935			-78.0	-77.7	6	9	NONE		NONE		
	940			-77.5	-73.2	6	6					
	945			-81.8	-76.3	7	5					
	950			-84.9	-79.0	8	9					
	955			-79.6	-77.6	9	9					
	1000			-78.8	-77.9	3	3					
	1005			-82.5	-75.7	6	7					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
229	1050			-82.4	-89.8	7	7	NONE		NONE		
	1055			-81.5	-87.1	7	12					
	1100			-79.5	-85.3	9	6					
	1105			-86.7	-93.3	9	8					
	1110			-87.2	-91.7	10	9					
	1115			-83.2	-89.7	8	9					
	1120			-80.9	-86.8	10	11					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
231	1325			-91.4	-99.6	9	9	NONE		NONE		REC PAD
	1330			-90.5	-99.2	9	10					
	1335			-88.5	-95.8	8	6					
	1340			-88.3	-96.6	8	8					
	1345			-87.9	-96.0	8	7					
	1350			-90.1	-96.4	8	10					
	1355			-90.6	-98.1	11	10					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
232	1425			-91.7	-94.8	9	6	NONE		NONE		REC PAD
	1430			-92.7	-94.2	7	11					
	1435			-92.6	-94.7	9	11					
	1440			-88.3	-91.2	8	7					
	1445			-92.3	-94.9	9	12					
	1450			-95.5	-96.0	15	16					
	1455			-92.8	-95.1	12	13					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
233	1540			-97.1	-98.4	17	23	NONE		NONE		REC PAD
	1545			-96.4	-97.6	17	24					
	1550			-96.4	-96.9	13	23					
	1555			-95.7	-96.2	16	20					
	1600			-93.8	-94.9	11	23					
	1605			-99.5	-100.5	17	26					
	1610			-99.6	-100.6	20	25					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
234	1650			-91.9	-93.7	17	12	NONE		NONE		REC PAD
	1655			-89.3	-91.2	16	15					
	1700			-90.0	-90.7	20	14					
	1705			-91.5	-92.0	20	20					
	1710			-91.8	-93.0	20	17					
	1715			-91.2	-93.0	21	15					
	1720			-91.3	-93.3	17	18					

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
254	1505			-85.2	-83.8	26	24	NONE		NONE		
	1510			-84.2	-82.7	24	26					
	1515			-86.6	-84.5	23	26					
	1520			-87.5	-86.2	30	26					
	1525			-87.2	-84.1	56	62					
	1530			-85.6	-84.3	31	30					
	1535			-86.4	-84.5	38	30					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
255	1605			-88.2	-87.0	36	34	NONE		NONE		
	1610			-87.5	-85.9	34	37					
	1615			-89.0	-87.5	30	34					
	1620			-87.0	-86.5	38	41					
	1625			-86.7	-85.7	36	33					
	1630			-88.0	-86.9	37	37					
	1635			-88.9	-87.1	34	37					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
256	1305			-78.8	-77.0	60	48	NONE		NONE		LOOP
	1310			-75.5	-74.3	52	43					
	1315			-76.7	-75.3	55	49					
	1320			-76.6	-75.3	48	45					
	1325			-79.0	-77.6	50	49					
	1330			-77.0	-75.2	53	54					
	1335			-78.5	-77.1	46	41					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
257	1455			-92.0	-80.4	41	28	NONE		NONE		LOOP
	1500			-78.0	-77.3	20	19					
	1505			-81.3	-79.2	15	14					
	1510			-83.7	-82.0	21	23					
	1515			-86.0	-85.2	30	29					
	1520			-83.8	-82.9	26	29					
	1525			-83.8	-83.0	39	26					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
258	1600			-83.4	-80.9	25	29	NONE		NONE		LOOP
	1605			-84.2	-81.6	24	26					
	1610			-87.0	-84.5	22	20					
	1615			-87.0	-85.9	25	24					
	1620			-87.7	-86.7	23	25					
	1625			-88.6	-86.8	25	21					
	1630			-88.5	-85.5	20	17					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
259	1215			-85.6	-82.8	20	19	NONE		NONE		LOOP
	1220			-86.0	-81.0	24	25					
	1225			-84.7	-79.5	28	29					
	1230			-84.0	-80.1	22	24					
	1235			-82.8	-79.0	19	21					
	1240			-85.1	-81.4	22	18					
	1245			-85.3	-80.9	16	19					

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
260	1325			-80.8	-75.1	21	20	NONE		NONE		LOOP
	1330			-81.8	-77.0	17	13					
	1335			-81.1	-77.3	18	17					
	1340			-81.7	-77.1	23	18					
	1345			-83.5	-79.1	22	20					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
261	1435			-78.2	-73.8	17	16	NONE		NONE		LOOP
	1440			-81.0	-76.0	11	14					
	1445			-82.3	-76.9	17	21					
	1450			-83.7	-79.4	20	16					
	1455			-85.3	-81.9	17	16					
	1500			-84.8	-84.9	16	14					
	1505			-86.0	-80.3	21	18					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
262	1540			-89.2	-87.3	15	19	NONE		NONE		LOOP
	1545			-89.7	-87.0	17	21					
	1550			-91.0	-88.8	19	18					
	1555			-91.0	-88.0	22	14					
	1600			-89.0	-86.5	24	24					
	1605			-91.4	-89.0	17	18					
	1610			-91.0	-87.7	19	23					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
263	1635			-85.3	-82.5	16	18	NONE		NONE		LOOP
	1640			-84.9	-83.0	17	21					
	1645			-86.0	-83.6	17	18					
	1650			-88.1	-86.6	16	16					
	1655			-88.5	-86.2	19	23					
	1700			-90.0	-88.5	22	21					
	1705			-88.8	-86.0	20	18					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
264	1225			-82.7	-80.3	38	31	NONE		NONE		LOOP
	1230			-81.8	-79.8	23	24					
	1235			-83.9	-81.2	30	26					
	1240			-82.5	-82.2	30	32					
	1245			-80.3	-79.5	32	30					
	1250			-81.0	-81.4	31	32					
	1255			-82.3	-81.1	35	37					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
265	945			-89.5	-88.3	18	21	NONE		NONE		LOOP
	950			-86.0	-85.8	21	27					
	955			-88.8	-86.7	26	23					
	1000			-87.9	-87.9	24	18					
	1005			-88.7	-87.0	23	21					
	1010			-89.0	-88.1	21	27					
	1015			-88.3	-86.5	19	18					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
266	1050			-84.6	-82.5	20	16	NONE		NONE		LOOP
	1055			-86.9	-86.8	17	20					
	1100			-86.5	-84.4	25	20					
	1105			-87.2	-85.0	19	21					
	1110			-87.5	-85.4	23	20					
	1115			-87.0	-84.8	26	23					
	1120			-88.0	-86.2	27	15					

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
267	1205			-88.5	-85.3	28	31	NONE		NONE		LOOP
	1210			-88.4	-86.5	27	23					
	1215			-87.3	-85.0	26	22					
	1220			-88.0	-84.6	28	25					
	1225			-86.9	-84.5	22	18					
	1230			-87.0	-84.0	17	19					
	1235			-88.0	-85.0	23	19					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
268	1405			-87.7	-86.0	21	24	NONE		NONE		LOOP
	1410			-85.4	-84.3	19	15					
	1415			-87.1	-86.8	16	21					
	1420			-86.7	-85.0	17	19					
	1425			-89.9	-90.0	23	25					
	1430			-89.8	-87.7	19	18					
	1435			-89.5	-88.5	18	19					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
269	1525			-89.2	-87.0	23	23	NONE		NONE		LOOP
	1530			-87.0	-86.1	20	17					
	1535			-86.7	-84.3	21	20					
	1540			-85.6	-84.1	12	15					
	1545			-86.1	-83.6	13	16					
	1550			-84.0	-83.1	17	16					
	1555			-86.8	-84.1	27	17					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
270	1030			-89.4	-90.0	39	34	NONE		NONE		
	1035			-89.5	-87.4	15	18					
	1040			-88.5	-87.9	101	118					
	1045			-89.5	-87.8	25	33					
	1050			-90.0	-89.5	18	15					
	1055			-88.8	-86.2	17	14					
	1100			-89.0	-87.6	24	21					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
271	1130			-86.5	-85.3	96	90	NONE		NONE		
	1135			-85.8	-85.1	21	22					
	1140			-84.9	-83.2	17	17					
	1145			-88.0	-85.9	23	23					
	1150			-86.6	-84.9	28	25					
	1155			-84.9	-83.1	27	26					
	1200			-84.3	-82.8	20	17					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
272	1225			-86.2	-83.2	17	22	NONE		NONE		
	1230			-85.5	-82.3	16	19					
	1235			-83.2	-81.2	14	17					
	1240			-83.7	-80.0	16	19					
	1245			-85.4	-81.5	11	12					
	1250			-83.1	-79.8	15	15					
	1255			-83.0	-80.2	17	14					

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
273	1320			-78.5	-77.0	16	19	NONE		NONE		
	1325			-77.3	-76.0	10	16					
	1330			-79.5	-77.5	87	41					
	1335			-78.2	-76.3	18	17					
	1340			-78.5	-77.3	19	17					
	1345			-77.1	-75.4	18	14					
	1350			-78.2	-75.7	15	15					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
274	1455			-84.5	-81.2	14	16	NONE		NONE		
	1500			-87.6	-82.8	16	16					
	1505			-83.5	-81.5	26	42					
	1510			-82.0	-80.2	14	11					
	1515			-83.4	-81.0	14	12					
	1520			-85.5	-82.4	16	17					
	1525			-85.6	-83.8	19	18					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
275	1610			-85.8	-84.3	23	15	NONE		NONE		
	1615			-86.7	-85.2	23	21					
	1620			-85.0	-81.5	19	19					
	1625			-84.9	-81.8	15	20					
	1630			-85.7	-83.8	73	63					
	1635			-87.0	-83.2	21	28					
	1640			-86.2	-83.4	22	21					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
282	1110			-92.4	-94.0	101	98	NONE		NONE		
	1115			-93.0	-95.0	97	96					
	1120			-92.4	-95.3	77	71					
	1125			-92.8	-94.9	84	94					
	1130			-91.3	-93.5	90	91					
	1135			-90.4	-91.5	190	190					
	1140			-91.5	-92.1	100	103					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
283	1235			-90.2	-90.1	144	133	NONE		NONE		
	1240			-89.3	-89.0	147	147					
	1245			-87.1	-86.2	107	108					
	1250			-88.6	-88.5	136	125					
	1255			-89.4	-89.0	110	114					
	1300			-87.0	-86.5	128	126					
	1305			-83.1	-82.1	70	74					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
284	1350			-89.4	-89.8	111	110	NONE		NONE		LOOP
	1355			-89.1	-89.8	94	97					
	1400			-89.1	-89.2	106	98					
	1405			-88.9	-89.3	122	129					
	1410			-88.9	-88.5	95	101					
	1415			-89.2	-89.6	103	94					
	1420			-90.0	-90.0	102	98					

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
285	1500			-88.7	-88.9	98	95	NONE		NONE		LOOP
	1505			-88.4	-88.4	101	95					
	1510			-88.2	-88.2	88	81					
	1515			-87.2	-86.7	98	91					
	1520			-86.0	-85.2	76	68					
	1525			-86.3	-84.6	78	66					
	1530			-86.7	-87.0	76	72					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
286	1605			-82.0	-82.2	74	70	NONE		NONE		LOOP
	1610			-79.2	-79.0	32	30					
	1615			-84.6	-85.0	62	67					
	1620			-85.4	-85.6	77	76					
	1625			-86.1	-85.7	80	77					
	1630			-84.9	-85.3	69	77					
	1635			-85.1	-84.6	78	73					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
290	1650			-86.6	-87.1	73	68	NONE		NONE		LOOP
	1655			-87.3	-87.5	64	70					
	1700			-86.7	-86.9	75	74					
	1705			-86.7	-87.2	62	62					
	1710			-85.6	-85.4	49	41					
	1715			-85.1	-85.2	40	40					
	1720			-85.5	-85.5	66	51					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
297	1035			-96.8	-102.9	47	45	NONE		NONE		LOOP
	1040			-96.9	-101.7	50	46					
	1045			-97.4	-101.3	52	47					
	1050			-97.7	-102.0	41	45					
	1055			-97.9	-102.5	40	46					
	1100			-98.2	-102.9	46	46					
	1105			-97.5		54						
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
298	1155			-96.8	-99.8	37	35	NONE		NONE		LOOP
	1200			-97.3	-100.2	34	34					
	1205			-97.4	-99.7	45	46					
	1210			-97.8	-99.5	39	42					
	1215			-97.8	-99.6	45	37					
	1220			-96.5	-98.9	36	35					
	1225			-98.5	-101.0	39	32					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
299	1255			-98.3	-100.3	33	32	NONE		NONE		LOOP
	1300			-97.5	-100.0	36	29					
	1305			-97.5	-99.5	36	34					
	1310			-97.3	-100.1	40	38					
	1315			-97.6	-100.2	36	37					
	1320			-97.2	-100.5	35	39					
	1325			-96.2	-98.2	45	41					

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
300	1405			-100.1	-101.0	24	23	NONE		NONE		LOOP
	1410			-99.7	-101.2	23	26					
	1415			-100.0	-101.3	25	23					
	1420			-99.3	-100.2	29	29					
	1425			-99.4	-101.1	21	21					
	1430			-99.4	-101.7	27	19					
	1435			-99.0	-102.5	21	23					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
301	1545			-99.4	-100.8	45	48	NONE		NONE		LOOP
	1550			-99.0	-101.0	42	30					
	1555			-99.1	-100.8	32	23					
	1600			-99.1	-101.8	32	29					
	1605				-101.2		23					
	1610			-99.2	-100.9	26	24					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
303	1255	2400	24	-82.5	-82.1	37	33	GSC4		NONE		LOOP
	1300			-82.3	-81.3	34	29					
	1305			-82.8	-82.4	29	26		0.0981			
	1310			-83.9	-82.7	33	32		0.3345			
	1315			-84.7	-84.3	41	41		0.2093			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
304	1425	2400	24	-84.9	-84.9	38	46	GSC4	0.0078	NONE		LOOP
	1430			-83.3	-83.1	45	38		0.0335			
	1435			-86.0	-85.4	32	35		0.1872			
	1440			-84.0	-84.8	44	40		0.0018			
	1445			-82.7	-83.1	42	31		0.1828			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
305	1515	2400	24	-78.0	-77.6	33	28	GSC4	0.0001	NONE		LOOP
	1520			-82.1	-82.5	25	26		0.0379			
	1525			-83.5	-83.1	37	30		0.1020			
	1530			-82.4	-82.0	44	45		0.0136			
	1535			-78.8	-78.4	35	33		0.0000			
	1540			-77.9	-77.7	38	35		0.0025			
	1545			-75.7	-75.9	34	38		0.0211			
	1550			-76.3	-76.1							
	1555			-78.3	-78.3							
	1600			-78.2	-77.8							
	1505			-79.0	-78.8							
	1610			-80.0	-79.6							
	1615			-80.6	-81.6							
	1620			-79.0	-78.8							
	1625			-77.7	-77.3							
	1630			-76.7	-76.1							
	1635			-78.2	-79.8							
	1640			-79.4	-79.2							
	1645			-81.4	-80.6							
	1650			-81.6	-80.6							
	1655			-81.4	-81.0							
	1700			-82.9	-82.5							
	1705			-83.1	-82.9							

FDM DATA

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	FRROR	TYPE	ERROR	REMARKS
306	1220			-94.9	-92.1	101	103	NONE		NONE		LOOP
	1225			-94.4	-90.8	106	107					
	1230			-96.2	-93.0	115	109					
	1235			-95.9	-93.7	103	107					
	1240			-94.6	-92.8	126	117					

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	FRROR	TYPE	ERROR	REMARKS
307	1305			-92.2	-91.0	123	117	NONE		NONE		LOOP
	1310			-91.8	-90.6	115	100					
	1315			-90.8	-89.2	95	81					
	1320			-91.0	-89.8	87	92					
	1325			-92.3	-90.7	113	109					

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	FRROR	TYPE	ERROR	REMARKS
308	1350			-88.4	-87.0	142	134	NONE		NONE		LOOP
	1355			-88.4	-87.6	123	118					
	1400			-87.2	-86.0	130	133					
	1405			-87.6	-83.2	123	104					
	1410			-82.2	-81.0	120	127					

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
309	1500			-92.7	-93.5	129	110	NONE		NONE		LOOP
	1505			-92.2	-92.4	145	149					
	1510			-92.7	-92.9	139	152					
	1515			-92.4	-92.2	144	142					
	1520			-91.2	-90.8	145	131					

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
310	1550			-89.2	-89.0	137	137	NONE		NONE		LOOP
	1555			-89.7	-89.1	145	146					
	1600			-89.2	-88.8	116	119					
	1605			-88.3	-87.7	123	118					
	1610			-86.6	-86.4	136	118					
	1615			-89.5	-89.1	119	108					
	1620			-90.1	-89.6	144	125					

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
312	1205			-83.3	-88.6	157	147	NONE		NONE		NON DIV
	1210			-83.0	-88.2	151	154					
	1215			-82.5	-88.5	152	138					
	1220			-80.8	-81.3	89	91					
	1225			-82.9	-89.5	157	124					
	1230			-81.9	-87.1	154	147					
	1235			-84.0	-88.5	150	151					

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
313	1315			-82.7	-90.3	137	134	NONE		NONE		NON DIV
	1320			-82.5	-90.5	139	127					
	1325			-82.3	-96.5	132	123					
	1330			-81.8	-89.4	130	124					
	1335			-81.6	-88.2	134	118					
	1340			-81.4	-88.0	[illegible]	117					

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RUN	TIME	RATE	CMS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
314	1415			-87.5	-94.7	148	126	NONE		NONE		NON DIV
	1420			-86.2	-93.8	183	174					
	1425			-84.9	-92.3	169	156					
	1430			-85.6	-94.0	204	201					
	1435			-85.0	-93.6	191	191					
	1440			-85.2	-93.6	173	194					
	1445			-84.6	-93.0	174	184					
RUN	TIME	RATE	CMS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
316	1615			-74.3	-79.5	56	45	NONE		NONE		LOOP
	1620			-76.0	-82.2	65	68					
	1625			-74.3	-81.3	77	71					
	1630			-75.5	-82.3	93	81					
	1635			-75.0	-83.2	82	76					
	1640			-73.2	-81.2	78	61					
	1645			-73.2	-81.2	93	82					
RUN	TIME	RATE	CMS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
317	1105			-75.5	-74.7	35	31	NONE		NONE		LOOP
	1110			-75.2	-74.6	37	40					
	1115			-74.0	-73.0	38	33					
	1120			-75.7	-74.5	48	39					
	1125			-75.4	-73.6	37	34					
	1130			-77.6	-76.4	43	45					
	1135			-77.0	-76.0	58	33					
RUN	TIME	RATE	CMS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
318	1230			-94.7	-93.1	17	24	NONE		NONE		LOOP
	1235			-96.1	-95.1	30	26					
	1240			-96.9	-96.1	30	38					
	1245			-95.1	-93.7	28	34					
	1250			-94.7	-93.1	25	28					
	1255			-95.2	-93.4	38	37					
	1300			-95.6	-94.0	32	31					
RUN	TIME	RATE	CMS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
319	1350			-78.8	-79.0	39	33	NONE		NONE		LOOP
	1355			-76.0	-75.4	27	31					
	1400			-77.4	-76.2	33	32					
	1405			-79.0	-78.6	41	29					
	1410			-79.2	-78.6	34	29					
RUN	TIME	RATE	CMS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
320	1425			-79.0	-78.0	33	35	NONE		NONE		LOOP
	1430			-79.2	-78.6	53	47					
	1435			-78.3	-77.7	33	35					

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
1	235	2400	24	-87.0	-93.5		39	GSC4	0.0330	NONE		
	240			-86.1	-93.7	33	40		0.0200			
	245			-86.6	-93.6	42	31		0.0060			
	250			-87.0	-93.6	36	43		0.0057			
	255			-87.9	-94.1	38	42		0.0075			
	300			-88.0	-93.8	42	40		0.0083			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
2	455	2400	24	-87.2	-94.3	32	33	GSC4		NONE		
	500			-86.5	-94.0	40	26					
	505			-85.9	-92.8	35	33		0.0017			
	510			-87.0	-93.0	27	28		3.0300			
	515			-86.2	-94.0	35	35		1.2700			
	520			-87.0	-95.0	38	44		14.4200			
	525			-87.5	-95.5	32	28		0.0160			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
3	550	2400	24	-88.5	-91.5	30	29	GSC4	0.0175	NONE		
	555			-87.4	-91.6	31	24		0.0051			
	600			-88.0	-92.4	31	36		0.0068			
	605			-88.0	-91.6	32	29		0.0024			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
4	1500	2400	24	-82.1	-90.7	22	24	GSC4	27.3000	NONE		
	1505			-82.2	-90.0	22	18		0.0000			
	1510			-82.6	-90.5	18	20		13.5000			
	1515			-81.5	-90.1	24	23		1.8000			
	1520			-82.1	-90.4	46	26		3.0000			
	1525			-80.8	-91.2	40	50		5.6000			
	1530			-81.3	-90.2	70	36		4.2000			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
5	2035	2400	24	-82.7	-91.9	30	25	GSC4	3.4700	NONE		
	2040			-83.7	-92.3	17	20		2.8000			
	2050			-82.4	-90.1	24	13		2.5200			
	2055			-81.0		17			3.2200			
	2100			-80.8	-89.0	38	24					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
6	2135	2400	24	-82.4	-91.7	24	20	GSC4	5.3700	NONE		
	2140			-82.3	-91.2	20	19		3.5000			
	2145			-81.2	-90.2	20	16		4.2800			
	2150			-82.3	-90.9	19	15		10.4000			
	2155			-84.4	-92.9	12	9		10.4200			
	2200			-81.3	-90.1	11	10		11.8300			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
7	2235	2400	24	-84.9	-93.2	21	16	GSC4	5.7800	NONE		
	2240			-84.1	-91.2	24	19		13.2300			
	2245			-84.9	-92.4	23	18		5.3100			
	2250			-83.3	-91.5	25	22		1.8300			
	2255			-81.8	-91.8	29	22		15.1900			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
8	0	2400	24	-84.0	-92.9	22	20	GSC4	4.3100	NONE		
	5			-82.8	-92.4	26	24		21.7900			
	10			-82.8	-91.4	29	25		18.9000			
	15			-83.1	-91.8	21	19		31.1400			
	2350			-82.1	-91.0	16	20		4.8000			
	2355			-82.2	-91.9	21	20		3.6100			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
9	1810			-82.2	-86.5	33	34	NONE		NONE		
	1815			-82.2	-85.9	33	30					
	1820			-82.1	-86.1	28	26					
	1825			-82.6	-87.1	30	30					
	1830			-80.9	-85.4	22	21					
	1835			-79.1	-84.0	21	20					
	1840			-79.6	-83.1							
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
10	1905	2400	24	-78.4	-81.4	22	20	FRED	0.0004	NONE		
	1910			-78.4	-81.6	21	21		0.0001			
	1915			-76.2	-79.3	19	22		0.0010			
	1920			-77.8	-80.6	26	21		0.0007			
	1925			-76.6	-79.2	23	26		0.0019			
	1930			-77.3	-80.7	26	25		0.0011			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
11	1205	2400	24	-79.1	-84.5	28	32	FRED	7.4800	NONE		
	1210			-81.4	-86.5	45	36		9.2100			
	1215			-78.6	-84.8	43	43		7.7000			
	1220			-79.3	-84.9	39	35		8.9800			
	1225			-77.8	-83.7	34	36		6.7800			
	1230			-78.7	-85.2	42	32		8.7600			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
12	1635	2400	24	-73.1	-77.5	16	18	FRED	0.6200	NONE		
	1640			-74.2	-77.7	19	17		1.2700			
	1645			-73.2	-77.6	16	15		3.8500			
	1650			-73.4	-77.4	18	22		1.5700			
	1655			-73.4	-76.3	14	14		1.1500			
	1700			-72.7	-76.8	15	14		0.7800			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
13	1105	2400	24	-84.4	-86.7	77	74	FRED	1.8000	NONE		
	1110			-84.7	-86.5	69	71		2.0900			
	1115			-84.6	-86.1	21	22		1.0000			
	1120			-85.0	-86.4	24	22		1.8500			
	1125			-83.4	-85.3	26	30		0.9800			
	1130			-84.1	-86.7	22	23		4.5600			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
14	1335	2400	24	-87.8	-88.8	35	32	FRED	5.4400	NONE		
	1340			-87.8	-89.2	30	30		0.8400			
	1345			-87.6	-87.9	30	26		0.4700			
	1350			-87.8	-87.9	35	30		0.4200			
	1355			-87.8	-88.6	35	38		1.0300			
	1400			-86.1	-86.5	25	32		0.7100			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
15	1505	2400	24	-84.7	-84.8	23	19	FRED	0.7000	NONE		
	1510			-85.0	-85.0	20	22		0.5600			
	1515			-85.5	-86.6	22	18		0.9400			
	1520			-84.6	-85.2	20	20		0.5100			
	1525			-85.0	-84.7	110	25		0.9000			
	1530			-85.6	-85.5		160		0.8300			
	1535			-83.3	-82.6							
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
18	2225	2400	24	-90.8	-92.3	109	110	GSC4	0.0160	NONE		
	2230			-92.8	-94.4	129	132		0.0590			
	2235			-94.5	-96.4	110	110		0.0700			
	2240			-94.5	-94.8	111	108		13.0300			
	2245			-91.5	-92.4	113	120		57.2000			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
19	1420			-97.9	-99.8	65	70	NONE		NONE		
	1425			-98.1	-100.0	62	65					
	1430			-98.1		60						
	1435			-98.1	-99.6	70	60					
	1440			-96.0	-97.9	52	47					
	1445			-97.2	-98.4	67	60					
	1450			-97.0	-99.1	65	55					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
28	1605	2400	6	-99.8	-101.5	55	65	GSC4	2.9800	NONE		
	1610			-99.2		70			3.0500			
	1615			-99.3	-100.4	80	65		1.8700			
	1625			-99.2		75			2.3100			
	1630			-99.7		85			3.0700			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
29	1735	2400	6	-96.0	-99.0	103	95	GSC4	0.8800	NONE		
	1740			-97.4	-99.0	110	95		0.9200			
	1745			-96.0	-98.0	104	90		0.7300			
	1750			-97.9	-98.5	100	90		0.5600			
	1755			-96.0	-98.2	92	85		0.7700			
	1800			-96.1	-98.2	93	90		1.0700			
	1805			-95.4	-98.0	89	90		1.6100			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
30	1135	2400	6	-97.2		82		FRED	9.0200	NONE		
	1140			-96.7	-99.8	77	75		7.0300			
	1145			-95.3	-98.4	86	70		4.9100			
	1150			-97.1	-99.3	68	65		30.7100			
	1155			-97.3	-99.9	58	55		11.1300			
	1200			-96.3	-99.0	68	60		9.1600			
	1205			-96.4	-99.0	50	58		12.1800			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
31	1350	2400	6	-96.1	-100.3	60	50	FRED	10.4600	NONE		
	1355			-95.6	-100.3	50	45		9.6800			
	1400			-96.9	-99.8	65	55		12.7500			
	1405			-96.8	-99.7	62	60		13.0500			
	1410			-96.2	-98.3	55	60		10.4000			
	1415			-95.3	-98.7	54	55		9.9200			
	1420			-94.9	-98.5	45	41		3.1400			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
32	1505	2400	6	-92.7	-94.5	46	40	FRED	0.8900	NONE		
	1510			-93.7	-95.1	49	45		1.2500			
	1515			-91.1	-92.7	42	40		0.1800			
	1520			-87.7	-89.4	43	40		0.4400			
	1525			-89.3	-91.3	38	41		0.2700			
	1530			-93.5	-95.3	40	40		1.3200			
	1535			-92.6	-96.1	33	30		1.3000			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
33	1605	2400	6	-86.0	-88.4			FRED		NONE		
	1610			-90.0	-91.3	36	40					
	1615			-89.2	-91.1	44	43		0.3500			
	1620			-88.3	-89.6	43	36		0.0480			
	1625			-89.5	-91.0	43	46		0.4300			
	1630			-87.7	-89.2	40	49		0.0740			
	1635			-85.6	-86.7	37	39		0.1000			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
34	1750	2400	6	-84.0	-86.5	53	53	FRED	0.0310	NONE		
	1755			-86.0	-88.0	52	62		0.0680			
	1800			-90.3	-93.2	70	65		0.3200			
	1805			-88.7	-92.5	57	54		0.3400			
	1810			-91.5	-94.6	58	63		0.5200			
	1815			-88.6	-92.8	62	67		0.6600			
	1820			-89.0	-91.5	56	51		0.2000			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
35	1330	2400	6	-91.7	-87.9	44	55	GSC4	0.0960	NONE		
	1335			-90.7	-86.0	48	41		0.0640			
	1340			-91.4	-88.6	38	39		0.1200			
	1345			-92.7	-89.3	64	53		0.0470			
	1350			-94.9	-91.0	68	57		0.1200			
	1355			-94.5	-89.9	52	41		0.0470			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
36	1425	2400	12	-99.0	-96.2	100	84	GSC4	0.4600	NONE		
	1430			-93.1	-94.2	71	57		0.4300			
	1435			-97.7	-94.6	80	72		0.1000			
	1440			-90.2	-90.3	46	40		0.1300			
	1445			-92.5	-88.8	33	34		0.5200			
	1450			-91.0	-90.1	37	34		2.4700			
	1455			-97.9	-94.7	69	52		1.0000			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
37	1535	2400	12	-95.0	-94.5	69	53	GSC4	0.0150	NONE		
	1540			-94.0	-93.0	64	58		0.0250			
	1545			-92.8	-91.5	58	51		0.1280			
	1550			-91.7	-90.7	61	53		0.0180			
	1555			-89.0	-91.1	57	49		0.1250			
	1600			-89.6	-89.2	45	36		0.0230			
	1605			-88.7	-88.1	46	46		0.0100			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
38	1625	2400	12	-90.6	-89.8	53	44	GSC4	0.0001	NONE		
	1630			-89.2	-88.5	47	48		0.0190			
	1635			-89.3	-88.4	58	51		0.0100			
	1640			-89.1	-88.2	53	55		0.0050			
	1645			-88.9	-88.2	56	53		0.0030			
	1650			-87.0	-85.8	58	56		0.0037			
	1655			-85.4	-84.5	54	50		0.0007			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
39	720			-85.5	-87.2	47	42	NONE		NONE		
	725			-84.0	-86.4	63	52					
	730			-84.7	-86.8	63	55					
	735			-85.3	-87.2	63	64					
	740			-86.4	-87.9	71	59					
	745			-86.6	-88.1	58	53					
	750			-86.3	-88.6	61	68					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
40	810	2400	12	-88.6	-90.4	47	51	GSC4	1.8500	NONE		
	815			-87.6	-90.3	41	46		1.1600			
	820			-87.0	-89.1	47	46		2.3300			
	825			-85.9	-88.4	40	46		1.5100			
	830			-84.0	-86.8	35	37		0.8300			
	835			-81.2	-82.5	29	33		0.0940			
	840			-80.5	-81.9	22	26		0.5700			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
41	905	2400	12	-86.5	-87.5	44	41	FRED	1.3800	NONE		
	910			-86.5	-88.4	43	40		1.4200			
	915			-84.1	-86.4	26	28		1.3600			
	920			-86.3	-87.8	51	43		0.9700			
	925			-84.7	-85.5	47	42		1.8800			
	930			-84.6	-85.9	47	48		0.4700			
	935			-83.9	-83.5	41	44		0.2300			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
42	1005	2400	12	-83.6	-85.0	39	39	GSC4	0.6000	NONE		
	1010			-80.6	-81.3	32	26		0.2400			
	1015			-83.6	-85.8	24	25		1.3200			
	1020			-78.5	-81.4	21	21		0.6900			
	1025			-79.4	-82.3	22	21		0.1600			
	1030			-80.9	-83.4	25	28		0.4200			
	1035			-82.7	-85.2	36	36		0.5900			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
43	1105	2400	6	-88.2	-90.3	29	23	GSC4	1.8900	NONE		
	1110			-86.1	-88.3	25	25		1.6400			
	1115			-88.0	-90.2	30	21		1.0700			
	1120			-89.1	-90.4	32	27		3.4100			
	1125			-88.9	-90.8	29	25		0.8500			
	1130			-86.4	-88.5	17	21		1.0400			
	1135			-88.0	-90.4	23	24		0.9900			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
44	1205	2400	6	-76.9	-78.2	15	15	GSC4	0.0070	NONE		
	1210			-77.6	-80.1	9	10		0.5300			
	1210			-75.0	-76.7	15	16		0.0015			
	1215			-82.1	-85.0	24	29		0.6800			
	1220			-84.8	-85.8	28	20		1.6200			
	1225			-85.4	-86.1	19	18		2.4300			
	1230			-82.6	-84.1	14	13		1.2000			
	1235			-83.3	-84.4	19	19		0.1900			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
45	1250	2400	6	-75.8	-77.1	18	15	GSC4	0.0410	NONE		
	1255			-79.5	-81.2	21	10		0.1400			
	1300			-80.6	-82.7	23	17					
	1305			-77.3	-78.9	20	16					
	1310			-81.5	-83.8	20	21					
	1315			-78.7	-80.8	33	27					
	1320			-81.0	-83.5	33	35					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
46	850	2400	6	-93.7	-95.1	42	45	FRED		NONE		
	855			-94.9	-97.4	41	42		2.6600			
	900			-96.1		31			1.7700			
	905			-94.4		43			0.1600			
	910			-95.1	-97.2	65	49		0.6000			
	915			-95.4	-98.0	38	42		0.6800			
	920			-94.5		49			0.7800			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
47	1005	2400	6	-94.6	-96.9	53	48	GSC4	0.3700	NONE		
	1010			-95.5	-96.0	43	33		0.4200			
	1015			-96.4		46			1.1400			
	1020			-95.8		58			1.0500			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
48	1105	2400	6	-93.6	-95.0	41	36	FRED	0.8200	NONE		
	1110			-93.1	-93.4	45	37		0.1100			
	1115			-94.1	-96.0	31	31		0.7400			
	1120			-95.4		38			1.1400			
	1125			-95.6		38			0.3100			
	1130			-95.3	-98.6	39	31		3.7000			
	1135			-98.7	-99.8	38	40		11.6400			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
49	1405	2400	6	-90.8				GSC4	1.0800	NONE		
	1410			-88.8	-92.3				0.7800			
	1415			-86.3	-88.5				0.5600			
	1420			-88.3	-90.4				0.2200			
	1425			-89.8	-92.2				0.7100			
	1430			-87.7	-89.3				0.2000			
	1435			-88.6	-91.1				0.2500			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
52	1620	2400	6	-99.7	-100.6	69	65	GSC4	9.0100	NONE		
	1625			-98.4	-98.6	61	60		6.2600			
	1630			-99.4	-100.1	57	57		11.1100			
	1635			-99.2	-99.1	74	70		7.0700			
	1640			-99.0	-99.5	76	68		3.4100			
	1645			-97.9	-97.8	82	77		3.8800			
	1650			-97.1	-97.9	76	72		2.6000			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
62	1455	2604	24	-92.0	-91.7	7	7	FRED	1.2310	NONE		
	1500			-92.8	-91.9	12	10		2.8090			
	1505			-92.3	-91.7	19	14		3.1550			
	1510			-91.6	-90.7	13	10		1.1330			
	1515			-94.6	-92.3	14	14		2.6400			
	1520			-92.4	-95.6	16	14		0.8290			
	1525			-88.8	-89.2	20	13		0.4000			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
63	1550	1200	14	-92.2	-92.0	19	16	GSC4	11.3670	FRED	0.5390	
	1555			-84.8	-85.6	11	8		7.8340		0.0990	
	1600			-80.8	-82.9	25	19		1.1840		0.0650	
	1605			-82.2	-83.4	24	13		0.8760		0.0160	
	1610			-78.2	-79.4	16	13		0.7890		0.0860	
	1615			-80.0	-80.4	22	13		2.0320		0.0300	
	1620			-74.4	-71.9	20	11		1.1330		0.1270	

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
64	1105	2604	24	-87.8	-85.0	10	7	FRED	1.0850	NONE		
	1110			-91.0	-87.6	16	14		1.0970			
	1115			-90.4	-87.3	26	21		0.2770			
	1120			-88.4	-86.2	24	20		0.9010			
	1130			-90.8	-88.1	16	18		1.1680			
	1135			-91.9	-89.9	14	12		2.9750			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
65	1155	1200	12	-89.8	-87.4	20	20	GSC4	3.7920	NONE		
	1200			-90.8	-87.7	14	12		11.1090			
	1205			-91.6	-89.0	15	18		6.7550			
	1210			-92.0	-90.0	22	16		7.4500			
	1215			-90.9	-88.0	15	17		5.3930			
	1220			-87.8	-87.6	16	16		5.5600			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
66	1510	2604	24	-95.2	-95.2	17	16	FRED	3.0780	NONE		
	1515			-93.8	-95.5	18	10		6.3950			
	1520			-95.0	-95.7	20	26		3.4390			
	1525			-94.5	-95.1	16	17		3.4820			
	1530			-94.3	-94.6	18	13		2.2760			
	1535			-95.2	-95.4	24	18		2.2840			
	1540			-93.6	-94.8	20	18		1.0340			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
67	1605	2604	12	-94.2	-99.5	26	36	FRED	2.0170	NONE		
	1610			-95.1	-99.5	32	22		1.8040			
	1615			-95.7	-100.6	25	25		2.8300			
	1620			-94.8	-99.4	46	30		3.1070			
	1625			-94.8	-100.0	27	41		2.5960			
	1630			-94.5	-98.3	29	31		1.4040			
	1635			-94.9	-99.5	40	31		1.0780			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
68	1035	2604	6	-93.9	-93.3	10	9	FRED	1.0690	NONE		
	1040				-96.1		10		1.8110			
	1045				-95.8		15		3.6540			
	1050				-94.5		12		1.7210			
	1055				-95.3		13		2.0980			
	1100				-94.7		17		1.0530			
	1105				-95.2		10		2.5570			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
69	1135	1200	6	-93.5	-91.2	16	18	GSC4	3.3050	NONE		
	1140			-92.7	-90.3	16	14		2.4210			
	1145			-96.8	-93.4	19	13		7.8950			
	1150				-97.2		13		18.2370			
	1155				-93.7		18		17.7920			
	1200				-93.8		18		14.8730			
	1205				-93.9		17		13.7330			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
70	1340	2604	6		-98.1		6	FRED	4.2880	NONE		
	1350			-96.2	-95.8	9	11		3.8930			
	1355			-93.8	-94.6	10	13		1.0470			
	1400			-98.0	-98.1	8	8		4.6170			
	1405			-97.8	-98.0	12	11		3.0880			
	1410			-97.7	-97.4	12	9		5.2740			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
71	1440	2604	12	-97.6	-97.7	15	14	FRED	3.4060	NONE		
	1445			-98.0	-99.6	15	13		6.0070			
	1450			-97.1	-98.5	19	17		3.9780			
	1455				-99.2		19		3.9680			
	1500			-96.5	-98.0	11	14		3.9680			
	1505			-97.6	-97.4	17	9		2.7640			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
72	1525	2604	12	-98.1	-98.7	10	8	FRED	4.1130	NONE		
	1535				-99.4		15		4.9150			
	1540			-96.6	-96.7	21	16		2.6370			
	1550				-97.2		9		4.0090			
	1555				-97.4		19		3.4420			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
73	1005	2604	24	-89.0	-86.2	84	57	FRED	0.2430	NONE		
	1010			-88.9	-86.4	57	40		0.3380			
	1015			-89.4	-86.1	62	49		0.3980			
	1020			-89.0	-86.0	59	53		0.2780			
	1025			-88.3	-85.7	65	45		0.7540			
	1030			-88.1	-86.0	71	46		0.5680			
	1035			-89.4	-85.7	54	49		0.4940			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
74	1055	1200	12	-89.1	-86.9	42	32	GSC4	6.6720	NONE		
	1100			-88.8	-85.8	50	47		7.8910			
	1105			-89.4	-86.0	54	47		7.6450			
	1115			-89.0	-86.4	65	54		4.7540			
	1120			-89.4	-86.9	65	49		3.8640			
	1125			-89.9	-86.7	63	73		3.5310			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
75	1150	1200	6	-87.9	-85.6	68	45	GSC4	0.8380	NONE		
	1155			-89.5	-86.5	70	59		1.0150			
	1200			-88.3	-86.2	76	66		1.2480			
	1205			-88.0	-84.9	78	57		1.0620			
	1210			-88.4	-86.5	70	57		0.9320			
	1215			-88.3	-85.1	73	64		0.9300			
	1220			-87.6	-85.7	69	47		0.9010			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
76	1320	1200	24	-88.3	-84.2	86	41	GSC4	10.3690	NONE		
	1325			-89.2	-83.1	81	61		7.0330			
	1330			-88.6	-83.4	81	67		7.0610			
	1335			-88.6	-84.5	62	61		9.9550			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
77	1445	2604	12	-72.3	-72.4	38	8	FRED	0.0004	NONE		
	1450			-76.8	-69.4	31	17		0.0010			
	1455			-72.0	-70.7	40	23		0.0001			
	1500			-72.7	-68.3	24	17		0.0001			
	1510			-77.1	-72.7	35	24		0.0006			
	1515			-74.4	-69.5	36	19		0.0006			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
78	1540	2604	24		-68.2		6	FRED	0.0130	NONE		
	1545				-67.4		13		0.0770			
	1550				-67.4		17		0.0220			
	1555				-68.0		23		0.0140			
	1600				-68.0		26		0.0140			
	1605			-73.3	-70.8	26	19		0.0270			
	1610			-72.0	-72.0	46	28		0.0220			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
79	1535	2604	24	-76.3	-77.0	47	25	FRED	0.0310	NONE		
	1540			-79.4	-79.2	42	46		0.1320			
	1545			-79.0	-79.5	40	43		0.0990			
	1550			-79.2	-79.2	43	35		0.0630			
	1555			-80.0	-79.1	33	36		0.1210			
	1600			-79.9	-79.6	34	38		0.1360			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
80	1625	2604	12	-78.8	-78.5	40	43	FRED	0.0240	NONE		
	1630			-77.6	-78.4	44	31		0.0160			
	1635			-78.5	-79.6	43	49		0.0060			
	1640			-78.6	-79.4	52	54		0.0012			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
81	1745	2604	6	-84.2	-82.1	57	41	FRED	0.0003	NONE		
	1750			-84.2	-82.2	52	50		0.0003			
	1755			-85.0	-82.3	64	59		0.0020			
	1800			-83.6	-82.4	69	61		0.0230			
	1810			-82.6	-80.2	49	60		0.0830			
	1815			-82.0	-79.2	65	44		0.0000			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
82	1835	2604	24	-83.9	-81.5	56	50	FRED	0.1080	NONE		
	1840			-84.8	-83.0	55	44		0.4330			
	1845			-83.9	-82.2	41	45		0.0300			
	1850			-84.2	-82.0	47	39		0.1380			
	1855			-85.0	-81.3	39	40		0.0180			
	1900			-84.4	-81.2	47	27		0.0600			
	1905			-83.9	-81.2	39	39		0.0440			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
83	1940	2604	12	-81.8	-79.6	22	26	FRED	4.9830	NONE		
	1945			-82.4	-80.2	36	35		0.1400			
	1950			-82.0	-80.1	27	33		0.0330			
	1955			-81.2	-79.6	31	29		0.0160			
	2000			-81.2	-79.4	30	26		0.0680			
	2005			-82.6	-81.1	34	31		0.0060			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
84	1420	2604	24	-74.5	-74.3	28	7	FRED	0.0000	NONE		
	1425				-72.6		8		0.0010			
	1430			-74.2	-75.5	16	10		0.0440			
	1435			-74.6	-76.0	11	8		0.0000			
	1440			-75.0	-76.6	15	9		0.0140			
	1445			-72.8	-76.9	18	12		0.0000			
	1450			-74.2	-75.7	22	12		0.0000			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
85	1530	2604	6	-76.1	-81.0	19	9	FRED	0.0000	NONE		
	1535			-76.6	-80.3	10	8		0.0015			
	1540			-75.6	-78.6	18	11		0.0000			
	1545			-76.4	-79.1	17	9		0.0013			
	1550			-76.9	-79.5	15	8		0.0010			
	1555			-75.7	-78.6	20	8		0.0006			
	1600			-75.8	-77.8	22	5		0.0004			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
88	1420	2604	24	-81.2	-83.7	13	14	FRED	0.0000	NONE		
	1425			-82.4	-84.0	21	12		0.0000			
	1430			-80.1	-83.4	23	12		0.0000			
	1435			-80.2	-84.0	19	9		0.0000			
	1440			-78.2	-82.0	10	10		0.0000			
	1445			-81.6	-83.5	12	10		0.0000			
	1450			-82.6	-83.8	14	12		0.0000			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
89	1530	2604	12	-82.7	-84.7	17	11	FRED	0.0000	NONE		
	1535			-82.4	-84.2	18	9		0.0000			
	1540			-84.3	-84.1	12	9		0.0000			
	1545			-82.8	-84.6	14	14		0.0000			
	1550			-85.0	-85.6	13	12		0.0000			
	1555			-82.6	-85.0	14	10		0.0000			
	1600			-83.2	-85.0	19	12		0.0000			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
90	1640	2604	6	-82.1	-82.8	21	8	FRED	0.0000	NONE		
	1645			-81.9	-81.9	21	11		0.0000			
	1650			-82.9	-82.2	18	8		0.0000			
	1655			-83.1	-81.7	12	9		0.0000			
	1700			-82.8	-82.0	21	16		0.0000			
	1705			-81.5	-81.8	18	12		0.0000			
	1710			-82.5	-82.4	19	10		0.0000			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
91	1750	2604	24	-83.4	-83.0	28	10	FRED	0.0047	NONE		
	1755			-83.1	-85.1	52	10		0.0008			
	1800			-82.9	-82.6	28	9		0.0005			
	1805			-83.7	-83.6	36	12		0.0058			
	1810			-83.9	-84.6	32	14		0.0022			
	1815			-81.7	-83.7	10	10		0.0006			
	1820			-82.9	-86.3	21	11		0.0275			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
92	1020			-93.1	-92.6	12	11	NONE		NONE		
	1025			-92.9	-92.7	16	17					
	1030			-92.2	-91.4	15	16					
	1035			-92.6	-92.5	18	13					
	1040			-92.1	-93.0	14	12					
	1045			-92.5	-92.9	21	16					
	1050			-92.9	-93.0	18	20					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
93	1350	2400	24	-88.0	-86.8	24	14	GSC4	0.1330	NONE		
	1355			-88.7	-88.1	12	16		4.0700			
	1400			-87.8	-87.5	19	15		4.9100			
	1405			-89.4	-89.0	21	17		2.1700			
	1410			-88.6	-89.3	18	20		1.3100			
	1415			-88.1	-88.2	16	15		0.2190			
	1420			-87.5	-89.0	16	14		0.1150			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
94	1455			-86.0	-87.8	33	27	NONE		NONE		
	1500			-83.8	-84.8	36	16					
	1505			-83.7	-83.0	46	23					
	1510			-82.0	-82.8	19	15					
	1515			-84.3	-83.7	20	14					
	1520			-82.9	-83.8	40	25					
	1525			-83.6	-84.0	20	17					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
98	1650	2604	6	-99.9	-91.3	29	26	FRED	0.0750	NONE		
	1655			-97.5		27			0.4990			
	1700			-97.0	-88.8	29	25		0.0550			
	1705			-98.3	-92.0	23	20		0.2020			
	1710			-97.2	-91.4	30	23		0.0186			
	1715			-97.3	-91.4	23	21		0.2580			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
99	1750	2604	12	-98.1	-91.9	41	42	FRED	0.4050	NONE		
	1755			-97.7	-91.3	35	32		0.2630			
	1800			-96.6	-89.3	25	25		0.2920			
	1805			-96.7	-89.9	35	50		0.2570			
	1810			-96.1	-88.4	43	31		0.0370			
	1815			-95.2	-89.0	40	29		0.0510			
	1820			-97.0	-91.2	25	32		0.2490			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
100	1935	2604	24	-101.6	-99.2	45	36	FRED	2.7500	NONE		
	1940			-102.2	-101.0	34	18		2.1200			
	1945			-101.3	-100.5	40	27		1.8000			
	1950			-101.8	-100.3	75	37		2.2500			
	1955			-101.1	-99.1	36	27		1.8400			
	2000				-102.0		33		3.8300			
	2005				-100.7		33		2.9900			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
104	1535	2604	6	-101.9	-102.9	20	17	FRED	0.7430	NONE		
	1540			-101.9	-99.9	16	23		1.9400			
	1545			-101.0	-104.6	8	3		1.6300			
	1550			-101.9	-99.3	36	14		1.2600			
	1555			-102.1	-104.6	12	8		2.1000			
	1600			-95.0	-92.4	7	2		0.2120			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
105	1630	2604	12		-102.1		11	FRED	6.8600	NONE		
	1635			-99.2	-94.7	19	10		11.0300			
	1640			-100.6	-93.8	24	10		7.3300			
	1645			-102.1	-100.2	30	16		1.8400			
	1650			-101.9	-99.3	30	16		1.4300			
	1655			-102.4	-94.1	15	14		1.4300			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
106	1715	2604	6	-103.3	-101.5	28	13	FRED	3.9300	NONE		
	1720			-102.3	-102.1	38	30		2.9500			
	1725			-103.8	-102.3	55	27		3.9500			
	1730			-102.0	-102.1	12	7		2.5100			
	1735			-102.2	-102.6	23	28		2.0700			
	1740			-101.2	-100.6	28	27		2.0000			
	1745			-100.0	-99.4	19	18		0.9770			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
107	1835	2604	12	-101.2	-100.2	19	19	FRED	2.9600	NONE		
	1840				-100.7		10		4.0800			
	1845			-101.1	-99.6	20	16		2.6500			
	1850			-98.1	-98.1	26	24		2.3200			
	1855			-101.1	-99.2	24	19		2.6600			
	1900			-99.8	-98.6	35	16		1.8200			
	1905			-96.7	-97.2	19	14		0.9730			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
108	1935	2604	12	-99.7	-98.8	25	22	FRED	0.8000	NONE		
	1940			-97.0	-96.8	28	24		0.2800			
	1945			-97.4	-95.8	21	10		0.6800			
	1950			-99.2	-97.8	28	26		0.5600			
	1955			-97.8	-97.9	32	17		0.4500			
	2000			-97.5	-95.7	30	14		0.3500			
	2005			-95.4	-95.5	37	26		0.2700			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
109	2025	2604	12	-97.7	-97.2	23	19	FRED	0.3200	NONE		
	2030			-98.5	-97.8	27	20		1.8000			
	2035			-96.3	-97.7	32	21		1.7800			
	2040			-98.2	-97.6	49	28		1.0600			
	2045			-101.0	-98.9	48	33		1.5800			
	2050			-99.4	-98.5	32	38		1.3700			
	2055			-100.5	-97.7	70	36		1.7400			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
110	2115	2604	12	-100.5	-98.5	30	19	FRED	3.1100	NONE		
	2120			-100.3	-99.4	34	24		1.7900			
	2125			-98.6	-97.9	30	11		0.8150			
	2130			-101.4	-100.1	25	27		3.3700			
	2135			-100.8	-98.9	29	22		2.2900			
	2140			-101.0	-102.5	22	21		7.1400			
	2145				-102.8		35		7.6800			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
112	1615	2604	5	-88.7	-86.7	15	26	FRED	0.3000	NONE		
	1620			-88.5	-86.0	16	14		0.0500			
	1625			-90.2	-82.6	15	18		0.0120			
	1630			-87.3	-85.0	11	7		0.0000			
	1635			-83.9	-83.2	9	9		0.0006			
	1640			-88.3	-86.8	9	4		0.1000			
	1645			-92.3	-91.5	15	17		0.5100			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
113	1025	2604	24	-92.7	-89.8	16	28	FRED	0.2900	NONE		
	1030			-89.5	-88.3	29	20		0.0570			
	1035			-91.7	-89.9	15	13		0.0400			
	1040			-91.1	-88.5	19	27		0.0910			
	1045			-87.8	-84.7	23	20		0.0430			
	1050			-91.7	-88.0	15	18		0.1000			
	1055			-79.4	-80.3	7	18		0.0001			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
114	1150	2604	24	-82.4	-82.6	30	16	FRED	0.1430	NONE		
	1155			-83.9	-83.4	12	23		0.0520			
	1200			-84.5	-83.9	21	28		0.0390			
	1205			-82.1	-81.2	25	14		0.0140			
	1210			-87.0	-82.4	22	27		0.0080			
	1215			-80.7	-82.2	34	28		0.0080			
	1220			-83.3	-82.6	13	10		0.0250			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
115	1320	2604	24	-94.9	-94.2	23	25	FRED	1.0570	NONE		
	1325			-99.8	-98.1	29	30		3.8500			
	1330			-100.3	-99.2	36	30		4.7000			
	1335			-99.6	-98.8	31	32		3.2800			
	1340			-99.5	-98.4	35	30		4.3300			
	1345			-97.7	-96.6	30	32		3.3100			
	1350			-99.6	-95.6	20	30		1.1700			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
116	1420	2604	12	-91.0	-91.8	19	20	FRED	0.2100	NONE		
	1425			-87.6	-88.7	15	21		0.0230			
	1430			-94.1	-96.2	12	19		0.6440			
	1435			-90.6	-92.0	8	14		0.8360			
	1440			-89.4	-91.3	11	18		0.2300			
	1445			-89.3	-89.7	17	13		0.2440			
	1450			-91.0	-88.7	15	21		0.1290			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
117	1520	2604	12	-94.0	-95.9	9	12	FRED	0.1500	NONE		
	1525			-92.8	-92.8	18	19		0.2460			
	1530			-94.5	-93.9	20	16		0.2160			
	1535			-95.7	-93.9	12	30		0.1000			
	1540			-98.7	-99.4	37	32		0.6100			
	1545			-98.9	-98.9	60	41		1.5600			
	1550			-97.1	-97.9	29	23		1.0400			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
118	1615	2604	12		-92.9		10	FRED	0.0260	NONE		
	1620			-93.2	-93.4	18	19		0.0880			
	1625			-91.7	-92.1	15	11		0.0776			
	1630			-93.7	-95.2	9	14		0.2500			
	1635			-92.6	-93.4	38	18		0.0550			
	1640			-92.1	-92.3	20	20		0.1060			
	1645			-91.1	-91.8	14	16		0.2920			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
119	1025	2604	12	-98.7	-98.4	24	35	FRED	5.3800	NONE		
	1030			-99.2	-98.0	34	33		6.3100			
	1035			-97.2	-96.7	37	30		4.9000			
	1040			-98.3	-98.3	26	63		4.4300			
	1045			-99.4	-98.5	69	84		1.8600			
	1050			-98.1	-96.7	22	23		1.4900			
	1055			-98.9	-98.0	20	24		2.4400			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
120	1125	2604	6	-96.3	-94.8	29	35	FRED	0.4200	NONE		
	1130			-96.3	-95.5	29	33		0.5700			
	1135			-96.5	-95.4	34	36		0.2500			
	1140			-93.7	-92.9	25	28		0.2500			
	1145			-92.6	-92.4	23	19		0.4300			
	1150			-94.0	-91.3	8	18		0.1950			
	1155			-99.0	-96.9	16	24		0.6710			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
121	950	2400	12	-91.3	-87.3	23	19	GSC4	11.1500	NONE		
	955			-88.4	-83.1	8	6		7.1300			
	1000			-94.4	-89.5	14	7		13.3100			
	1005			-90.5	-87.6	19	18		10.5600			
	1010			-88.3	-86.7	22	13		6.0400			
	1015			-88.6	-84.8	21	18		5.5100			
	1020			-91.4	-89.3	24	12		9.5100			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
122	1040	2400	12	-92.0	-88.9	15	18	GSC4	16.9600	NONE		
	1045			-92.4	-90.9	21	20		11.3600			
	1050			-95.3	-92.6	20	21		20.8600			
	1055			-95.0	-90.4	19	19		13.7100			
	1100			-95.2	-94.3	19	14		14.9000			
	1105			-97.2	-93.4	32	21		25.2500			
	1110			-97.9	-93.6	36	31		23.7900			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
123	1150	2400	12	-97.6	-95.5	31	24	GSC4	23.2800	NONE		
	1155			-97.9	-95.7	27	39		27.1300			
	1200				-95.5		13		26.9500			
	1205			-99.1	-96.5	24	29		24.0300			
	1210			-95.3	-93.4	30	23		17.7000			
	1215			-91.0	-87.0	19	12		9.3800			
	1220			-91.3	-88.7	26	13		9.4200			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
124	1345	2604	12	-81.3	-80.7	27	28	FRED	0.0765	NONE		
	1350			-82.7	-81.2	36	18		0.0760			
	1355			-85.6	-78.5	26	26		0.0560			
	1400			-83.0	-80.0	15	19		0.1090			
	1405			-81.6	-78.0	23	24		0.0780			
	1410			-87.0	-81.8	33	33		0.1730			
	1415			-81.4	-83.7	29	16		0.2980			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
125	1450	2604	24	-89.1	-85.7	29	28	FRED	1.0970	NONE		
	1455			-90.7	-87.2	27	27		1.3800			
	1500			-91.3	-89.2	31	29		1.5500			
	1505			-88.6	-85.6	29	21		1.1300			
	1510			-89.8	-85.9	28	22		1.0500			
	1515			-91.0	-87.5	28	19		1.5600			
	1520			-89.2	-85.6	35	23		1.3600			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
126	1540	2604	24	-91.6	-89.2	33	33	FRED	0.2450	NONE		
	1545			-93.3	-89.4	32	34		0.3300			
	1550			-95.1	-91.5	27	30		0.5080			
	1555			-98.0	-95.2	26	24		0.9000			
	1600			-97.2	-95.5	44	41		0.7370			
	1605			-96.9	-95.8	42	25		1.1200			
	1610			-99.3	-96.4	35	46		1.7500			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
127	1625	2604	12	-99.3	-94.8	36	30	FRED	0.3040	NONE		
	1630			-96.6	-96.2	45	32		0.4420			
	1635			-98.1	-95.4	33	33		0.1840			
	1640			-98.2	-95.9	35	26		0.2340			
	1645			-99.0	-96.0	38	33		1.5500			
	1650			-99.4	-95.2	40	18		0.4590			
	1655			-99.8	-95.4	39	38		0.0970			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
128	945	2604	12	-88.1	-90.6	60	36	FRED	0.0010	NONE		
	950			-87.5	-90.7	44	29		0.0044			
	955			-88.3	-90.7	68	44		0.0040			
	1000			-86.4	-90.1	50	46		0.0004			
	1005			-87.8	-90.3	46	50		0.0001			
	1010			-87.6	-89.8	48	53		0.0006			
	1015			-87.1	-88.6	63	39		0.0059			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
129	1035	2604	24	-85.2	-89.5	44	34	FRED	0.0320	NONE		
	1040			-83.8	-87.2	31	27		0.0087			
	1045			-85.7	-88.6	39	20		0.0238			
	1050			-84.9	-87.6	26	19		0.0171			
	1055			-83.0	-84.4	26	18		0.0158			
	1100			-84.2	-85.3	25	19		0.0161			
	1105			-83.4	-84.5	24	23		0.0180			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
130	1130	2604	24	-81.9	-83.1	22	12	FRED	0.0046	NONE		
	1135			-81.3	-77.9	16	7		0.0150			
	1140			-81.4	-81.6	20	13		0.0037			
	1145			-82.3	-84.5	38	15		0.0174			
	1150			-82.2	[illegible]	31	23		0.0163			
	1155			-83.8	[illegible]	35	27		0.0143			
	1200			-83.4	-82.9	34	12		0.0130			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
131	1255			-82.1	-82.4	33	43	NONE		NONE		
	1300			-80.2	-82.4	43	29					
	1305			-82.3	-83.5	32	38					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
132	1445			-78.6	-81.4	42	22	NONE		NONE		
	1450			-80.4	-83.3	33	32					
	1455			-82.8	-84.2	27	24					
	1500			-82.5	-84.1	32	37					
	1505			-83.1	-82.4	37	33					
	1510			-82.0	-81.7	21	30					
	1515			-82.0	-82.2	35	26					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
133	1555			-81.2	-77.3	57	30	NONE		NONE		
	1600			-80.9	-78.4	40	52					
	1605			-81.2	-77.9	33	35					
	1610			-82.0	-80.2	44	36					
	1615			-79.6	-76.6	29	28					
	1620			-81.1	-77.8	45	39					
	1625			-80.4	-77.1	38	34					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
134	1640			-81.1	-76.8	53	39	NONE		NONE		
	1645			-80.8	-76.6	45	26					
	1650			-81.2	-77.8	39	27					
	1655			-81.2	-78.2	49	39					
	1700			-81.9	-77.4	46	38					
	1705			-80.8	-77.2	45	42					
	1710			-79.8	-76.7	46	30					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
135	1125			-89.0	-92.4	13	8	NONE		NONE		
	1130			-89.4	-90.0	12	8					
	1135			-86.4	-88.5	12	5					
	1140			-87.3	-91.1	18	21					
	1145			-86.0	-90.0	10	9					
	1150			-85.2	-89.7	10	9					
	1155			-84.6	-94.5	10	8					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
136	1350			-92.0	-89.1	10	12	NONE		NONE		
	1355			-89.7	-88.2	18	14					
	1400			-89.8	-87.4	14	15					
	1405			-86.6	-84.9	14	12					
	1410			-88.4	-85.6	10	11					
	1415			-88.5	-85.3	19	12					
	1420			-88.9	-87.5	14	9					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
137	1505	2604	24	-82.9	-80.1	8	8	FREQ	0.0000	NONE		
	1510			-84.3	-81.3	17	16		0.0000			
	1515			-78.5	-77.5	12	9		0.0000			
	1520			-81.3	-78.7	11	8		0.0000			
	1525			-81.1	-78.7	13	9		0.0000			
	1530			-80.1	-79.8	22	10		0.0290			
	1535			-77.5	-76.6	24	8		0.0000			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
138	1555	2604	24	-80.5	-81.3	23	8	FRED	0.0000	NONE		
	1600			-77.5	-78.9	21	5		0.0285			
	1605			-79.7	-80.5	10	9		0.0282			
	1610			-77.2	-79.1	18	6		0.0290			
	1615			-78.6	-81.5	16	7		0.0288			
	1620			-76.8	-77.5	13	17		0.0003			
	1625			-76.7	-77.0	13	9		0.0027			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
139	1655	2604	24	-78.8	-81.0	14	9	FRED	0.0290	NONE		
	1700			-80.3	-81.6	10	6		0.0580			
	1705			-83.0	-84.1	16	13		0.0290			
	1710			-80.0	-81.5	26	8		0.0440			
	1715			-77.8	-79.6	20	8		0.0292			
	1720			-81.5	-83.7	28	10		0.0569			
	1725			-84.0	-85.7	24	9		0.0281			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
141	1605	2604	24	-83.1	-82.0	43	20	FRED	0.2000	NONE		LOOP
	1610			-80.9	-81.3	25	16		0.0890			
	1615			-85.6	-85.6	24	18		0.1210			
	1620			-81.7	-81.9	21	23		5.4800			
	1625			-85.4	-86.1	20	10		0.6200			
	1630			-82.2	-82.2	31	14		0.1900			
	1635			-86.7	-85.4	19	24		0.5100			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
142	1245	2604	24	-75.4	-72.4	14	12	FRED	0.0340	NONE		LOOP
	1250			-73.1		15			0.1310			
	1255			-73.2		16			0.0210			
	1300			-73.4	-72.2	15	16		0.0170			
	1305			-75.9	-73.4	14	15		0.0350			
	1310			-73.1		13			0.0906			
	1315			-75.3		17			0.0250			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
145	1105	2604	12	-98.9	-98.6	12	11	FRED	0.5770	NONE		LOOP
	1110			-97.3	-98.3	16	15		0.3130			
	1115			-97.9	-97.9	15	21		0.5010			
	1120			-93.8	-98.6	17	19		0.8180			
	1125			-98.9	-98.3	15	16		0.4640			
	1130			-97.8	-97.9	13	22		0.3330			
	1135			-100.1	-100.1	11	23		0.6210			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
146	1205	2604	6	-101.2	-101.3	12	18	FRED	0.6920	NONE		LOOP
	1210			-100.4	-100.9	16	22		0.3560			
	1215			-101.4	-102.0	21	20		0.8150			
	1220			-100.3	-97.9	17	21		0.5880			
	1225			-98.8	-97.0	15	17		0.4830			
	1230			-97.8	-98.0	19	22		0.3790			
	1235			-99.3	-98.5	15	19		0.5950			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
147	1305	2604	12	-96.2	-94.9	16	22	FRED	0.1100	NONE		
	1310			-94.5	-95.0	13	22		0.0760			
	1315			-93.8	-95.0	16	16		0.1140			
	1320			-94.8	-94.6	14	20		0.1270			
	1325			-94.1	-92.7	29	20		0.1100			
	1330			-88.6	-88.8	21	17		0.0340			
	1335			-87.8	-87.9	18	10		0.0230			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
148	1405	2604	24	-87.9	-87.5	15	10	FRED	0.1030	NONE		
	1410			-78.0	-78.5	13	3		0.0390			
	1415			-81.4	-80.1	13	13		0.0450			
	1420			-83.3	-80.7	24	9		0.0550			
	1425			-86.0	-86.2	21	12		0.0850			
	1430			-83.5	-83.5	20	8		0.0590			
	1435			-86.3	-86.4	20	15		0.0390			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
149	1505	2604	24	-85.5	-87.0	22	11	FRED	0.0500	NONE		
	1510			-87.2	-86.5	18	18		0.1170			
	1515			-86.5	-83.9	14	12		0.0700			
	1520			-89.3	-86.9	10	9		0.1410			
	1525			-92.5	-90.3	11	13		0.3100			
	1530			-92.2	-89.5	13	11		0.3070			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
150	1235	2604	6	-90.0	-90.6	15	20	FRED	0.0770	NONE		
	1240			-93.2	-93.7	19	27		0.0610			
	1245			-93.0	-93.3	14	18		0.0330			
	1250			-93.8	-93.5	28	35		0.0670			
	1255			-91.2	-91.2	26	30		0.0190			
	1300			-89.0	-89.8	17	21		0.0260			
	1305			-91.0	-90.2	23	26		0.0086			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
151	1325	2604	12	-90.7	-90.7	20	26	FRED	0.1610	NONE		
	1330			-92.3	-93.5	22	28		0.1610			
	1335			-92.2	-91.9	28	27		0.0810			
	1340			-90.5	-92.7	22	30		0.2220			
	1345			-89.6	-91.3	23	26		0.0610			
	1350			-89.9	-90.8	27	28		0.0660			
	1355			-89.4	-90.0	20	23		0.0480			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
152	1415	2604	24	-86.8	-87.3	35	38	FRED	0.2040	NONE		
	1420			-87.4	-88.6	42	48		0.2200			
	1425			-87.7	-89.2	25	40		0.2000			
	1430			-87.5	-88.7	38	33		0.4000			
	1435			-83.5	-84.4	23	22		0.1070			
	1440			-87.1	-87.4	24	33		0.1310			
	1445			-86.6	-87.1	33	36		0.1100			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
153	1505	2604	24	-84.8	-85.8	36	26	FRED	0.2100	NONE		
	1510			-86.7	-84.9	31	28		0.1900			
	1515			-84.5	-86.1	38	30		0.1490			
	1520			-83.9	-82.1	31	29		0.1180			
	1525			-86.0	-85.6	24	22		0.1060			
	1530			-86.4	-86.1	29	18		0.2080			
	1535			-81.3	-81.0	16	8		0.0800			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
154	1615	2604	12	-89.1	-90.9	29	28	FRED	0.0079	NONE		LOOP
	1620			-88.0	-88.1	34	38		0.0200			
	1625			-88.2	-89.3	33	31		0.0150			
	1630			-88.0	-88.1	32	37		0.0200			
	1635			-87.0	-86.5	32	24		0.0048			
	1640			-86.9	-86.3	35	42		0.0144			
	1645			-85.0	-82.5	25	27		0.0012			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
155	1355	2604	24	-80.5	-78.4	18	5	FRED	0.1570	NONE		LOOP
	1400			-81.3	-77.2	13	7		0.0214			
	1405			-83.5	-79.5	14	13		0.0530			
	1410			-85.4	-81.1	11	9		0.0640			
	1415			-80.7	-78.9	17	10		0.0230			
	1420			-83.4	-78.9	19	14		0.0370			
	1425			-84.3	-78.4	18	8		0.0270			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
156	1445	2604	24	-86.0	-81.9	9	9	FRED	0.1970	NONE		LOOP
	1450			-85.6	-81.3	13	6		0.0820			
	1455			-84.4	-80.5	11	13		0.0184			
	1500			-88.8	-96.1	12	6		0.0830			
	1505			-86.4	-82.0	10	8		0.0600			
	1510			-85.1	-83.3	14	4		0.1240			
	1515			-88.2	-85.0	5	5		0.0770			

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
157	1535	2604	24	-90.0	-87.4	10	11	FRED	0.1770	NONE		LOOP
	1540			-83.5	-80.7	14	6		0.1040			
	1545			-82.0	-77.9	6	5		0.0480			
	1550			-84.1	-82.7	13	8		0.0580			
	1555			-85.7	-82.9	16	9		0.0410			
	1600			-84.9	-85.1	15	9		0.0570			
	1605			-85.0	-84.5	14	9		0.3850			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
158	1505	2400	24	-88.5	-91.5	54	21	FRED	0.2660	NONE		
	1510			-88.5	-92.5	53	31		0.3730			
	1515			-88.9	-92.6	48	28		0.2400			
	1520			-90.1	-93.0	56	31		0.5750			
	1525			-88.7	-93.7	49	31		0.2830			
	1530			-88.9	-93.4	55	38		0.1040			
	1535			-88.5	-92.0	47	37		0.0870			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
159	1615	2400	24	-88.5	-89.2	35	23	FRED	0.0030	NONE		
	1620			-86.8	-87.0	25	19		0.0000			
	1625			-88.5	-88.4	27	11		0.0000			
	1630			-87.1	-88.2	25	22		0.0000			
	1635			-85.7	-86.9	24	20		0.0000			
	1640			-86.3	-87.5	22	13		0.0005			
	1645			-88.0	-89.0	32	19		0.0000			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
160	1210			-88.5	-89.4	46	29	NONE		NONE		
	1215			-88.5	-89.9	37	27					
	1220			-88.7	-89.7	38	27					
	1225			-89.2	-90.0	34	23					
	1230			-89.3	-90.8	37	25					
	1235			-89.5	-90.5	41	28					
	1240			-89.9	-90.3	32	19					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
161	1310			-87.7	-88.9	28	20	NONE		NONE		
	1315			-86.0	-87.0	22	13					
	1320			-86.6	-86.2	20	12					
	1325			-86.5	-88.1	25	16					
	1330			-87.1	-87.5	16	17					
	1335			-88.7	-89.4	48	25					
	1340			-89.5	-90.1	61	32					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
162	1535	2400	24	-84.3	-87.3	41	38	FRED	0.0043	NONE		
	1540			-84.5	-87.4	39	30		0.0000			
	1545			-83.5	-86.4	39	35		0.0440			
	1550			-82.2	-85.4	28	20		0.0280			
	1555			-83.2	-85.9	30	20		0.0070			
	1600			-83.0	-85.6	27	18		0.0292			
	1605			-83.3	-86.3	26	23		0.0788			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
163	1050	2400	24	-91.5	-90.7	25	6	FRED	0.0492	NONE		
	1055			-90.0	-90.6	28	9		0.1920			
	1100			-91.3	-91.2	25	13		0.3680			
	1105			-89.0	-88.0	16	10		0.1730			
	1110			-90.5	-91.2	23	7		0.0108			
	1115			-91.0	-92.7	14	9		0.2010			
	1120			-90.1	-89.5	17	11		0.1740			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
164	1250	2400	24	-93.2	-95.5	26	9	FRED	0.8930	NONE		
	1255			-93.5	-95.2	31	10		1.2500			
	1300			-94.9	-96.5	18	10		1.6000			
	1305			-95.2	-96.5	32	11		1.4300			
	1310			-94.2	-96.6	28	15		2.1400			
	1315			-93.7	-96.0	20	12		1.0800			
	1320			-94.4	-96.9	21	11		1.3400			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
165	1350	2400	24	-94.2	-93.0	25	10	FRED	0.8280	NONE		
	1355			-93.6	-92.8	24	7		0.5750			
	1400			-93.9	-93.7	18	16		0.1190			
	1405			-93.0	-92.5	22	18		0.2630			
	1410			-96.0	-94.9	35	11		0.8990			
	1415			-94.0	-92.4	19	15		0.3050			
	1420			-94.4	-94.0	32	16		0.3390			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
166	1520	2400	24	-89.0	-89.5	39	33	FRED	0.3330	NONE		
	1525			-90.4	-90.5	26	27		0.1980			
	1530			-89.7	-89.8	32	26		1.0500			
	1535			-89.8	-89.0	45	22		0.6210			
	1540			-89.4	-89.2	43	21		0.1970			
	1545			-89.4	-89.0	52	21					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
167	1235			-96.4	-103.3	15	1	NONE		NONE		
	1240			-96.3	-103.7	32	7					
	1245			-96.9	-103.5	24	12					
	1250			-98.0	-104.2	28	13					
	1255			-97.5	-103.2	32	14					
	1300			-96.4	-101.6	23	15					
	1305			-94.1	-102.9	21	12					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
168	1335			-92.7	-96.7	23	8	NONE		NONE		
	1340			-94.4		18						
	1350			-93.4		28						
	1355			-94.5	-98.5	27	13					
	1400			-92.4	-98.2	28	15					
	1405			-95.2	-98.9	32	13					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
169	1550			-89.8	-90.1	32	17	NONE		NONE		
	1555			-88.9	-91.0	34	21					
	1600			-89.9	-92.0	30	15					
	1605			-90.1	-92.6	38	22					
	1610			-89.9	-90.8	40	34					
	1615			-89.4	-91.4	33	23					
	1620			-89.1	-90.3	31	16					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
170	1650	2400	24	-89.2	-91.0	22	15	FRED	0.0515	NONE		
	1655			-90.4	-90.0	22	23		0.2850			
	1700			-83.5	-84.3	17	16		0.0076			
	1705			-85.8	-87.3	36	26		0.2630			
	1710			-85.5	-86.6	33	23		0.1050			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
173	1955	2400	24	-87.3	-86.5	12	13	FRED	0.0000	NONE		
	2000			-83.8	-83.6	18	15		0.0000			
	2005			-86.4	-85.8	20	16		0.0000			
	2010			-87.4	-87.1	16	15		0.0000			
	2015			-86.7	-87.4	22	16		0.0000			
	2020			-85.8	-85.3	16	16					
	2025			-86.3	-86.0	16	15					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
174	2105	2400	24	-87.5	-87.5	18	9	FRED	0.0000	NONE		
	2110			-84.4	-87.9	18	16		0.0000			
	2115			-86.3	-87.5	17	15		0.0000			
	2120			-86.6	-87.5	19	15		0.0000			
	2125			-86.3	-86.0	18	15		0.0238			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
176	1120	2400	24	-77.5	-80.7	29	26	FRED	0.0000	NONE		
	1125			-77.6	-80.5	28	27		0.0000			
	1130			-77.3	-81.0	25	25		0.0000			
	1135			-75.6	-79.0	27	24		0.0000			
	1140			-76.8	-80.3	26	26		0.0000			
	1145			-77.0	-80.8	25	22		0.0000			
	1150			-77.7	-81.4	36	28		0.0000			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
179	950	2400	24	-82.4	-84.5	27	19	FRED	0.0000	NONE		
	955			-84.5	-84.5	18	19		0.0000			
	1000			-84.0	-84.2	22	19		0.0010			
	1005			-83.6	-83.4	21	15		0.0012			
	1010			-84.1	-83.7	30	20		0.0000			
	1015			-84.2	-83.1	23	17		0.0000			
	1020			-83.6	-81.6	29	25		0.0000			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
180	1150	2400	24	-79.8	-78.5	22	19	FRED	0.0000	NONE		
	1155			-77.9	-75.8	16	17		0.0000			
	1200			-77.5	-75.2	31	24		0.0000			
	1205			-83.4	-80.9	11	4		0.0001			
	1210			-84.4	-83.7	22	15		0.0000			
	1215			-85.0	-83.6	20	13		0.0000			
	1220			-84.4	-82.5	31	27		0.0000			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
181	1150	2400	24	-80.1	-79.1	21	21	FRED	0.0000	NONE		
	1155			-81.2	-79.2	24	19		0.0000			
	1200			-78.9	-77.0	41	22		0.0900			
	1205			-76.2	-74.0	15	30		0.0000			
	1210			-73.8	-72.4	9	12		0.0014			
	1215			-74.6	-72.6	15	14		0.0000			
	1220			-75.9	-73.3	12	18		0.0000			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
182	1250	2400	24	-89.6	-91.1	17	10	FRED	0.0000	NONE		REC PAD
	1255			-90.5	-91.9	29	18		0.0000			
	1300			-90.2	-91.1	32	16		0.0000			
	1305			-91.0	-90.6	27	20		0.0000			
	1310			-90.7	-91.1	27	17		0.0000			
	1315			-89.6	-90.4	25	21		0.0000			
	1320			-90.8	-91.2	27	17		0.0000			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
183	1350	2400	24	-91.0	-90.2	31	20	FRED	0.0000	NONE		REC PAD
	1355			-90.7	-90.9	28	12		0.0000			
	1400				-91.9		13		0.0014			
	1405			-92.8	-92.4	28	13		0.0000			
	1410			-91.7	-91.8	22	18		0.0001			
	1415			-92.0	-91.5	26	19		0.0000			
	1420			-90.5	-91.9	29	17		0.0000			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
185	1245	2400	24	-96.8	-91.9	19	10	FRED	0.0000	NONE		
	1250			-99.4	-91.7	27	16		0.0004			
	1255				-92.9		12		0.0000			
	1300				-93.5		17		0.0003			
	1305				-93.7		14		0.0001			
	1310				-93.2		15		0.0039			
	1315				-93.7		19		0.0000			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
186	1345	2400	24		-95.2		9	FRED	0.0226	NONE		
	1350				-94.5		16		0.0003			
	1355				-96.4		11		0.0000			
	1400				-97.3		14		0.0136			
	1405				-96.4		18		0.0046			
	1410				-94.7		15		0.0003			
	1415				-96.3		12		0.0017			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
187	1500	2400	24	-98.5	-96.0	27	23	FRED	0.0000	NONE		
	1505			-98.8	-95.2	31	17		0.0021			
	1510			-96.7	-94.2	25	20		0.0010			
	1515			-95.0	-93.2	21	18		0.0001			
	1520			-93.3	-91.9	25	14		0.0000			
	1525			-94.3	-93.1	29	19		0.0025			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
188	1600	2400	24	-92.8	-93.0	33	22	FRED	0.0004	NONE		
	1605			-93.3	-93.8	34	18		0.0000			
	1610			-95.0	-94.7	40	27		0.0003			
	1615			-95.7	-94.8	36	29		0.0006			
	1620			-94.0	-94.8	43	33		0.0024			
	1625			-94.2	-94.2	41	32		0.0012			
	1630			-93.9	-92.8	41	31		0.0000			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
189	1020	2400	24	-90.2	-99.0	24	13	FRED	1.2300	NONE		
	1025			-89.9	-98.8	39	28		1.4900			
	1030			-89.3	-96.7	36	30		0.2870			
	1035			-91.6	-96.8	32	26		0.3220			
	1040			-92.3	-99.6	33	21		3.1300			
	1045			-92.2	-99.6	44	38		3.6300			
	1050			-92.5	-100.8	42	25		6.5200			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
190	1220	2400	24	-88.9	-95.2	31	23	FRED	0.4660	NONE		
	1225			-88.2	-94.0	27	22		0.1990			
	1230			-87.6	-93.5	28	20		0.0351			
	1235			-87.7	-93.5	27	21		0.0035			
	1240			-86.4	-94.2	22	17		0.4980			
	1245			-87.8	-93.6	32	18		0.0022			
	1250			-88.3	-94.5	29	23		0.1280			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
191	1320	2400	24	-96.5	-95.6	30	23	FRED	0.2930	NONE		
	1325			-98.0	-95.5	30	18		0.0815			
	1330			-96.8	-95.3	34	23		1.1800			
	1335			-98.9	-97.7	28	17		0.4710			
	1340			-99.7	-97.2	26	20		0.0335			
	1345			-97.5	-96.2	24	18		0.2090			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
192	1520	2400	24	-98.7	-100.2	13	16	FRED	0.1860	NONE		
	1525			-97.6	-99.2	19	18		0.0961			
	1530			-96.0	-100.2	23	19		0.0638			
	1535			-97.8	-100.2	24	15		0.0782			
	1540			-98.1	-101.1	18	13		0.1350			
	1545			-98.4	-100.0	19	16		0.0403			
	1550			-98.5	-101.1	18	14		0.0190			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
193	950	2400	24	-98.8	-94.8	24	21	FRED	0.1710	NONE		
	955			-99.3	-94.4	29	19		0.0463			
	1000			-98.1	-93.5	38	18		0.1130			
	1005			-98.9	-94.4	36	24		0.2120			
	1015				-94.4		16		0.1730			
	1020				-94.3		19		0.0181			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
194	1050	2400	24	-95.5	-92.1	24	12	FRED	0.0007	NONE		
	1055			-94.3	-90.8	13	11		0.0793			
	1100			-94.9	-90.8	21	12		0.0606			
	1105				-90.8		13		0.0010			
	1110			-95.2	-91.2	19	13		0.0000			
	1115				-90.2		9		0.0000			
	1120			-94.2	-90.2	16	10		0.0000			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
195	1235	2400	24	-96.3	-90.4	11	10	FRED	0.0119	NONE		
	1240			-95.1	-90.2	13	10		0.4980			
	1245			-94.7	-90.3	10	8		0.0000			
	1250			-94.8	-89.8	16	12		0.0075			
	1255			-93.9	-90.0	9	9		0.0000			
	1300			-94.5	-89.5	11	11		0.0033			
	1305			-93.5	-89.2	14	8		0.0039			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
196	1355	2400	24	-91.5	-93.2	9	10	FRED	0.0258	NONE		
	1400			-91.3	-95.3	10	10		0.0000			
	1405			-91.5	-93.5	13	7		0.0004			
	1410			-91.3	-94.3	12	9		0.0004			
	1415			-91.9	-94.7	13	12		0.0036			
	1420			-92.1	-94.7	15	10		0.0012			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
198	1605	2400	24	-90.4	-92.5	12	19	FRED	0.0003	NONE		
	1610			-91.5	-92.7	10	19		0.0124			
	1615			-92.6	-94.8	15	10		0.0011			
	1620			-92.0	-92.2	17	23		0.0008			
	1625			-90.7	-92.8	12	23		0.0175			
	1630			-92.1	-93.7	18	19		0.0214			
	1635				-94.5		21		0.0092			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
200	1130	2400	24	-91.7	-90.2	28	15	FRED	1.6800	NONE		
	1135			-91.0	-92.0	21	14		3.3900			
	1140			-91.5	-92.3	22	16		8.3900			
	1145			-92.0	-92.6	21	17		3.8400			
	1150			-94.5	-94.0	16	14		2.7800			
	1155			-91.9	-91.9	9	9		6.7700			
	1200			-96.8	-97.2	8	3		9.3500			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
201	1415	2400	24	-98.1	-98.3	25	17	FRED	0.1380	NONE		
	1420			-98.3	-97.9	25	24		0.1580			
	1425			-99.1	-97.1	26	25		0.0920			
	1430			-99.6	-97.8	18	18		0.1860			
	1435			-98.5	-96.9	26	19		0.0025			
	1440			-100.5	-96.6	22	25		0.0714			
	1445			-102.3	-97.5	17	18		0.3110			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
202	1515	2400	24	-99.6	-98.7	22	25	FRED	0.1480	NONE		
	1520			-98.3	-98.7	29	27		0.0814			
	1525			-98.9	-99.0	31	23		0.5360			
	1530			-99.3	-99.8	22	21		0.7110			
	1535			-99.1	-98.7	25	25		0.0365			
	1540			-99.3	-99.5	22	19		0.3770			
	1545			-100.7	-101.3	26	25		0.8330			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
203	1620	2400	24	-98.4	-99.3	20	18	FRED	1.0900	NONE		
	1625			-97.9	-99.5	26	23		1.2800			
	1630			-96.6	-98.5	33	33		1.0000			
	1635			-97.4	-98.8	24	25		0.2760			
	1640			-97.9	-99.2	29	31		0.4710			
	1645			-97.0	-98.9	22	27		1.0300			
	1650			-95.8	-98.2	34	30		0.2780			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
204	1025	2400	24	-83.7	-81.2	18	12	FRED	1.8400	NONE		
	1030			-86.0	-84.5	10	10		1.2000			
	1035			-88.3	-86.2	14	14		0.8800			
	1040			-83.2	-82.6	19	15		1.1800			
	1045			-83.6	-82.8	16	14		1.3200			
	1050			-82.7	-79.0	7	10		1.2300			
	1055			-90.1	-88.6	5	7		1.0400			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
205	1135	2400	24	-93.3	-92.5	5	4	FRED	0.0012	NONE		
	1140			-94.0	-91.2	13	10		0.1370			
	1145			-91.6	-89.0	14	16		0.3690			
	1150			-91.7	-90.0	8	7		0.4810			
	1155			-89.2	-86.3	10	6		0.0018			
	1200			-92.5	-90.2	15	5		0.4570			
	1205			-94.0	-91.7	9	6		0.2960			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
206	1315	2400	24	-93.8	-91.0	10	11	FRED	0.0938	NONE		
	1320				-93.9		8		0.1680			
	1325			-90.0	-90.6	6	10		0.0143			
	1330			-85.5	-91.0	4	11		0.0388			
	1335				-91.5		13		0.0006			
	1340			-89.3	-93.5	12	19		0.0415			
	1345				-91.9		22		0.0107			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
207	1440	2400	24	-85.9	-90.1	15	13	FRED	0.0058	NONE		
	1445			-86.3	-89.0	13	16		0.0397			
	1450			-85.3	-89.5	16	14		1.2500			
	1455			-87.8	-88.8	12	15		0.4200			
	1500			-88.2	-88.5	14	16		0.0019			
	1505			-86.9	-87.4	19	15		0.7010			
	1510			-86.6	-87.3	18	20		0.5780			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
208	1620	2400	24	-85.8	-86.3	26	22	FRED	0.0870	NONE		
	1625			-85.3	-85.6	20	21		0.3360			
	1630			-85.8	-86.4	21	20		0.2680			
	1635			-85.5	-85.7	18	19		0.0099			
	1640			-85.6	-86.3	26	26		0.0188			
	1645			-85.3	-86.1	29	26		0.1770			
	1650			-85.2	-85.4	21	23		0.1730			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
209	1705	2400	24	-85.5	-86.0	27	29	FRED	0.0786	NONE		
	1710			-84.6	-85.1	28	24		0.1340			
	1715			-84.7	-85.3	34	30		0.2140			
	1720			-83.7	-84.0	25	23		0.3670			
	1725			-84.3	-84.4	27	19		0.0600			
	1730			-86.3	-86.2	20	21		0.1700			
	1735			-86.4	-86.7	29	24		0.0640			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
210	1250	2400	24		-101.5		2	FRED	7.5600	NONE		
	1255				-102.3		9		10.4000			
	1300				-102.2		19		6.6600			
	1305				-101.8		26		7.2000			
	1310				-101.5		20		5.5100			
	1315				-102.4		17		6.3900			
	1320				-101.9		25		7.0000			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
211	1430	2400	24	-108.8	-98.4	29	29	FRED	0.0300	NONE		
	1435			-106.2	-99.0	23	24		0.0430			
	1440			-103.6	-96.9	26	25		0.0630			
	1445			-103.2	-97.0	27	21		0.0097			
	1450			-99.6	-97.0	19	19		0.0004			
	1455			-96.6	-91.1	34	15		0.0082			
	1500			-96.4	-92.4	28	21		0.0001			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
212	1535	2400	24	-95.6	-95.6	21	5	FRED	0.0146	NONE		
	1540			-95.0	-96.0	18	13		0.0075			
	1545			-94.3	-92.7	22	11		0.0470			
	1550			-86.4	-82.4	1			0.0138			
	1555			-90.5	-83.4	37	5		0.0008			
	1600			-87.0	-84.0	6	3		0.1270			
	1605			-85.9	-83.5	2	3		0.0104			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
213	1055	2400	24	-85.2	-82.1	8	9	FRED	0.0003	NONE		
	1100			-86.8	-84.3	13	13		0.0019			
	1105			-85.2	-83.0	7	10		0.0015			
	1110			-84.1	-81.5	14	14		0.0043			
	1115			-86.0	-83.0	11	8		0.0039			
	1120			-82.6	-80.3	7	12		0.1080			
	1125			-83.7	-81.0	12	9		14.9900			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
214	1205	2400	24	-82.0	-79.3	8	8	FRED	0.1450	NONE		
	1210			-81.7	-79.3	12	12		0.0024			
	1215			-80.6	-78.7	13	10		0.2440			
	1220			-79.5	-76.5	12	10		0.0014			
	1225			-80.2	-76.5	15	13		0.0260			
	1230			-80.0	-75.9	9	14		0.0021			
	1235			-79.8	-76.5	11	9		0.0440			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
215	1300	2400	24	-78.0	-73.0	10	11	FRED	0.0000	NONE		
	1305			-78.6	-74.6	10	8		0.0132			
	1310			-79.5	-76.0	6	6		0.2160			
	1315			-80.0	-75.8	15	11		0.0419			
	1320			-78.1	-74.0	10	7		0.0025			
	1325			-74.1	-74.6	15	13		0.0007			
	1330			-78.5	-74.3	9	6		0.0019			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
216	1410	2400	24	-84.8	-83.2	7	12	FRED	0.0000	NONE		REC PAD
	1415			-84.7	-83.8	10	8		0.0000			
	1420			-87.7	-87.0	8	6		0.0003			
	1425			-86.8	-86.0	9	11		0.0000			
	1430			-89.2	-88.7	4	1		0.0004			
	1435			-89.8	-89.5	10	10		0.0018			
	1440			-90.0	-90.8	8	7		0.0000			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
217	1510	2400	24	-74.8	-73.4	7	2	FRED	0.3580	NONE		
	1515			-75.7	-74.9	13	11		0.0078			
	1520			-73.0	-72.6	9	7		0.1540			
	1525			-74.4	-75.3	8	10		0.0068			
	1530			-78.7	-75.6	4	9		0.0111			
	1535			-82.0	-80.6	8	5		0.0060			
	1540			-82.3	-82.9	8	10		0.0003			

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
218	1315	2400	24	-78.3	-75.8	5	5	FRED	0.0549	NONE		
	1320			-81.9	-80.0	8	8		0.0012			
	1325			-80.6	-79.7	11	9		0.0276			
	1330			-81.7	-80.6	11	8		0.0000			
	1335			-77.1	-75.1	12	7		0.0000			
	1340			-76.1	-74.6	15	12		0.0000			
	1345			-79.2	-76.1	9	18		0.0000			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
219	1440	2400	24	-76.2	-72.7	7	5	FRED	0.0000	NONE		
	1445			-78.2	-75.5	7	10		0.0000			
	1450			-77.8	-74.0	13	11		0.0000			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
220	1535	2400	24	-92.2	-91.7	5	5	FRED	0.0030	NONE		
	1540			-93.0	-93.4	8	4		0.1260			
	1545			-93.4	-93.3	4	4		0.0120			
	1550			-91.7	-90.5	7	6		0.0000			
	1555			-94.3	-92.6	5	9		0.0000			
	1600			-96.9	-97.0	4	4		0.3220			
	1605			-89.9	-90.0	2	6		0.0000			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
221	935	2400	24	-98.2	-95.7	29	18	GSC4	4.6680	FRED	2.9280	
	940			-99.2	-96.5	27	22		8.0130		2.2680	
	945			-98.4	-96.4	34	25		5.0280		1.7890	
	950			-97.6	-94.5	33	36		3.3360		0.9180	
	955			-97.3	-95.0	45	35		3.1330		0.4000	
	1000			-97.4	-95.0	38	38		19.0850		2.4480	
	1005			-97.4	-95.8	38	30		7.2650		2.3240	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
222	1105	2400	24	-102.7	-101.0	14	6	GSC4	5.4080	FRED	0.9180	
	1110			-100.0	-99.4	30	21		4.2740		1.7690	
	1115			-98.4	-98.4	27	28		2.7240		0.3030	
	1120			-98.9	-98.2	23	32		3.6520		0.7980	
	1125			-99.9	-98.4	39	47		6.4010		0.2320	
	1130			-98.0	-97.9	36	37		3.1110		0.1980	
	1135			-97.2	-97.4	36	40		2.9170		0.3460	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
223	1205	2400	24	-95.4	-96.1	37	26	GSC4	3.6390	FRED	1.6430	
	1210			-97.5	-96.6	48	33		3.5170		0.5650	
	1215			-98.3	-97.2	33	28		4.3030		0.7590	
	1220			-98.4	-97.5	23	26		5.6530		1.2070	
	1225			-98.5	-97.5	22	23		10.7640		1.0250	
	1230			-98.0	-97.2	24	17		7.2220		1.0260	
	1235			-97.5	-96.8	24	24		6.4420		1.6290	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
224	1335	2400	24	-93.6	-95.5	21	18	GSC4	0.3190	FRED	0.0001	
	1340			-95.3	-96.6	17	19		0.5400		0.0020	
	1345			-93.7	-96.6	19	16		0.5560		0.0020	
	1350			-94.3	-96.2	19	21		0.3430		0.0040	
	1355			-92.7	-93.7	20	19		0.0590		0.0000	
	1400			-92.1	-94.9	23	21		0.2420		0.0002	
	1405			-90.2	-92.3	16	18		0.0570		0.0010	

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
225	1435	2400	24	-98.8	-99.6	14	14	GSC4	0.3070	FRED	0.0020	
	1440			-98.9	-100.3	15	10		0.4390		0.0680	
	1445			-98.4	-100.3	15	16		0.4700		0.0370	
	1450			-98.2		20			0.3470		0.0040	
	1455			-98.3	-100.0	17	16		0.4280		0.0020	
	1500			-102.4	-101.5	21	20		0.6360		0.0040	
	1505			-101.0	-100.5	22	18		0.4470		0.0004	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
226	1540	2400	24	-94.4	-94.8	12	12	GSC4	0.0670	FRED	0.0030	
	1545			-92.8	-93.7	10	9		0.0330		0.0010	
	1550			-89.6	-90.9	13	13		0.0340		0.0020	
	1555			-90.7	-91.9	13	9		0.0700		0.0040	
	1600			-91.5	-91.2	17	13		0.0560		0.0050	
	1605			-93.7	-93.8	9	8		0.0460		0.0020	
	1610			-91.9	-93.4	10	8		0.0550		0.0030	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
227	1635	2400	24	-92.1	-91.8	9	10	GSC4	0.2330	FRED	0.2130	
	1640			-93.7	-93.8	9	12		0.0700		0.0090	
	1645			-93.9	-93.7	17	18		0.0250		0.0010	
	1650			-93.4	-94.3	24	19		0.0780		0.0230	
	1655			-93.6	-93.9	22	22		0.0640		0.0003	
	1700			-93.9	-94.8	21	15		0.0430		0.0010	
	1705			-93.5	-94.1	27	20		0.0290		0.0001	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
228	935	2400	24	-71.1		5		GSC4	0.0210	FRED	0.0030	
	945			-72.8	-72.6	12	11		0.0180		0.0100	
	950			-76.5	-77.9	10	10		0.0190		0.0130	
	955			-76.4	-75.5	10	11		0.0580		0.0070	
	1005			-72.8	-73.7	6	7		0.0130		0.0010	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
229	1050	2400	24	-80.9	-81.3	10	7	GSC4	0.0004	FRED	0.0000	
	1055			-77.8	-76.6	8	7		0.0001		0.0000	
	1100			-77.1	-77.2	5	8		0.0003		0.0000	
	1105			-81.5	-82.8	6	8		0.0000		0.0000	
	1110			-83.1	-84.9	8	8		0.0006		0.0010	
	1115			-80.0	-81.9	7	10		0.0020		0.0070	
	1120			-79.6	-79.7	7	8		0.0000		0.0001	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
231	1325	2400	24	-90.6	-88.4	7	9	GSC4	0.0001	FRED	0.0000	REC PAD
	1330			-88.6	-88.0	5	3		0.0030		0.0000	
	1335			-85.0	-86.6	6	3		0.0010		0.0000	
	1340			-89.4	-91.0	9	6		0.0860		0.0010	
	1345			-85.8	-87.1	5	5		0.0000		0.0000	
	1350			-87.1	-87.8	8	9		0.0030		0.0000	
	1355			-88.3	-88.8	4	7		0.0000		0.0000	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
232	1425	2400	24	-88.8	-89.6	6	8	GSC4	0.0020	FRED	0.0000	REC PAD
	1430			-88.9	-89.9	11	7		0.0004		0.0000	
	1435			-85.3	-86.4	6	6		0.0010		0.0000	
	1440			-88.7	-89.7	7	6		0.0060		0.0000	
	1445			-88.7	-89.9	10	8		0.0001		0.0000	
	1450			-91.2	-91.9	14	16		0.0060		0.0000	
	1455			-90.0	-91.6	12	11		0.0050		0.1160	

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
233	1540	2400	24	-90.3	-90.2	15	11	GSC4	0.0140	FRED	0.0000	REC PAD
	1545			-91.4	-91.9	15	8		0.0120		0.0000	
	1550			-89.2	-89.4	7	8		0.0460		0.0120	
	1555			-91.0	-91.6	10	8		0.0060		0.0000	
	1600			-90.0	-91.4	10	11		0.1180		0.0030	
	1605			-95.1	-94.8	11	9		0.0010		0.0010	
	1610			-96.4	-97.0	15	10		0.2670		0.0004	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
234	1650	2400	24	-89.1	-90.7	15	16	GSC4	0.0010	FRED	0.0000	REC PAD
	1655			-88.1	-87.8	10	10		0.0003		0.0000	
	1700			-86.0	-87.0	10	9		0.0004		0.0000	
	1705			-87.8	-88.9	15	16		0.0007		0.0380	
	1710			-91.0	-90.6	13	15		0.0030		0.0000	
	1715			-90.0	-90.0	18	17		0.0001		0.0000	
	1720			-87.8	-88.1	17	13		0.0020		0.0000	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
235	1335	2400	24	-89.1	-91.6	15	15	GSC4	0.0300	FRED	0.0000	QUAD DIV
	1340			-89.5	-91.2	16	14		0.0290		0.0000	
	1345			-90.4	-91.6	15	12		0.0940		0.0060	
	1350			-89.6	-90.2	12	9		0.0300		0.0000	
	1355			-89.0	-90.2	15	15		0.0050		0.0000	
	1400			-87.7	-90.2	13	9		0.0140		0.0000	
	1405			-89.5	-92.3	17	14		0.0120		0.0000	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
236	1435	2400	24	-88.8	-92.6	12	11	GSC4	0.0150	FRED	0.0000	QUAD DIV
	1440			-88.0	-91.0	12	10		0.0130		0.0000	
	1445			-88.7	-91.0	12	10		0.0020		0.0000	
	1450			-88.7	-91.2	15	15		0.0150		0.0000	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
237	1535	2400	24	-86.8	-89.3	7	10	GSC4	0.0140	FRED	0.0000	QUAD DIV
	1540			-88.5	-90.0	13	12		0.0050		0.0000	
	1545			-88.2	-89.3	8	9		0.0170		0.0000	
	1550			-86.8	-89.3	12	8		0.0010		0.0000	
	1555			-87.3	-89.8	12	11		0.0030		0.0000	
	1600			-85.6	-89.3	14	12		0.0120		0.0000	
	1605			-85.3	-89.0	12	8		0.0003		0.0000	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
238	1620	2400	24	-87.4	-89.4	9	8	GSC4	0.0050	FRED	0.0000	QUAD DIV
	1625			-87.1	-89.1	9	9		0.0150		0.0000	
	1630			-85.3	-88.4	9	10		0.0003		0.0000	
	1635			-85.8	-88.9	7	6		0.0030		0.0000	
	1640			-86.9	-88.9	11	13		0.0060		0.0000	
	1645			-88.0	-88.4	13	12		0.0006		0.0000	
	1650			-86.7	-89.2	11	9		0.0050		0.0000	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
239	1105	2400	24	-85.5	-86.0	32	31	GSC4	0.0040	FRED	0.0280	QUAD DIV
	1110			-85.4	-85.7	35	27		0.0050		0.0290	
	1115			-84.9	-85.8	29	30		0.0030		0.0120	
	1120			-85.3	-85.9	24	31		0.0030		0.0010	
	1125			-85.5	-85.4	27	27		0.0040		0.0006	
	1130			-84.9	-85.8	28	25		0.0030		0.0001	
	1135			-85.4	-85.6	28	27		0.0020		0.0010	

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
240	1205	2400	24	-85.0	-87.5	22	13	GSC4	0.0030	FRED	0.0000	QUAD DIV
	1210			-85.1	-86.3	24	22		0.0030		0.0000	
	1215			-84.5	-85.2	18	21		0.0040		0.0100	
	1220			-85.6	-85.5	12	17		0.0040		0.0007	
	1225			-85.1	-86.0	19	13		0.0050		0.0000	
	1230			-84.1	-85.8	16	19		0.0040		0.0000	
	1235			-83.6	-85.5	19	24		0.0100		0.0006	

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
241	1320	2400	24	-87.8	-89.4	14	14	GSC4	0.0080	FRED	0.5090	QUAD DIV
	1325			-88.3	-89.0	13	11		0.0030		0.4780	
	1330			-86.7	-89.4	14	12		0.0020		0.1930	
	1335			-86.0	-88.4	14	12		0.0040		0.5040	
	1340			-86.6	-90.4	11	8		0.0210		0.2900	
	1345			-86.3	-88.1	19	18		0.0020		0.0620	
	1350			-85.4	-87.9	16	19		0.0030		0.1150	

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
242	1510	2400	24	-91.5	-91.5	15	13	GSC4	0.0158	FRED	0.2180	QUAD DIV
	1515			-91.8	-91.0	12	16		0.0065		0.5540	
	1520			-90.1	-91.0	16	16		0.0107		0.4820	
	1525			-91.4	-91.7	17	14		0.0065		0.1320	
	1530			-90.3	-90.0	11	14		0.0060		0.2850	
	1535			-93.5	-92.0	8	8		0.0057		0.6530	
	1540			-93.8	-92.2	13	14		0.0093		0.7870	

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
243	1610	2400	24	-92.5	-91.5	15	8	GSC4	0.0120	FRED	0.2570	QUAD DIV
	1615			-90.8	-89.2	14	10		0.0060		0.0350	
	1620			-89.0	-88.6	16	11		0.0040		0.0840	
	1625			-90.0	-90.0	12	10		0.0060		0.1270	
	1630			-69.5	-69.4	15	16		0.0080		0.2120	
	1635			-91.6	-90.9	10	9		0.0050		0.1720	
	1640			-91.6	-90.3	13	10		0.0100		0.1280	

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
244	1040	2400	24	-85.3	-90.5	8	14	GSC4	0.0150	FRED	0.0000	QUAD DIV
	1045			-89.2	-90.2	14	17		0.0190		0.0000	
	1050			-91.0	-92.1	13	14		0.0260		0.0000	
	1055			-89.6	-91.9	15	18		0.0300		0.0000	
	1100			-89.2	-91.7	15	16		0.0070		0.0000	
	1105			-89.1	-91.6	15	14		0.0290		0.0030	
	1110			-89.3	-91.5	15	12		0.0250		0.0003	

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
245	1140	2400	24	-90.4	-91.5	13	15	GSC4	0.0315	FRED	0.0004	QUAD DIV
	1145			-90.2	-92.8	13	15		0.0021		0.0007	
	1150			-91.9	-93.0	11	16		0.0015		0.0005	
	1155			-91.0	-95.0	15	11		0.0550		0.0130	
	1200			-91.0	-95.0	17	16		0.0188		0.0045	
	1205			-91.6	-94.5	15	13		0.0260		0.0098	
	1210			-93.0	-94.4	13	11		0.0132		0.0045	

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
246	1240	2400	24	-92.2	-93.7	13	13	GSC4	0.0370	FRED	0.0087	QUAD DIV
	1245			-91.6	-93.7	20	14		0.1660		0.0567	
	1250			-90.6	-92.7	23	13		0.0081		0.0017	
	1255			-91.4	-94.2	25	11		0.0100		0.0020	
	1300			-93.9	-94.2	9	12		0.0157		0.0045	
	1305			-93.0	-93.8	14	12		0.0164		0.0038	
	1310			-90.7	-93.2	10	11		0.0164		0.0043	

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
247	1340	2400	24		-92.0		10	GSC4	0.0115	FRED	0.0026	QUAD DIV
	1345				-91.3		16		0.0019		0.0004	
	1350				-91.4		12		0.0003		0.0000	
	1355				-92.5		12		0.0019		0.0085	
	1400				-94.0		13		0.0186		0.0077	
	1405				-93.4		10		0.0004		0.0002	
	1410				-93.5		9		0.0018		0.0010	

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
248	1440	2400	24	-91.1	-93.8	9	7	GSC4	0.1840	FRED	0.0636	QUAD DIV
	1445			-93.3	-93.7	14	13		0.0039		0.0011	
	1450				-94.0		9		0.0000		0.0004	
	1455			-92.6	-92.9	11	9		0.0007		0.0002	
	1500			-92.4	-93.0	11	12		0.0014		0.0003	
	1505			-90.8	-90.6	10	10		0.0030		0.0000	
	1510			-91.3	-92.0	13	9		0.0111		0.0000	

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
249	1540	2400	24	-93.3	-95.4	9	5	GSC4	0.0114	FRED	0.0075	QUAD DIV
	1545			-95.1	-94.9	8	7		0.0620		0.0270	
	1550			-92.5	-93.3	14	10		0.0012		0.0009	
	1555			-92.6	-93.5	8	9		0.0800		0.0057	
	1600			-93.3	-94.5	12	8		0.0270		0.0066	
	1605			-91.9	-93.5	9	10		0.0920		0.0314	
	1610			-92.4	-93.2	5	10		0.0300		0.0110	

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
250	1640	2400	24	-93.5	-95.6	10	14	GSC4	0.0780	FRED	0.0173	QUAD DIV
	1645			-93.9	-95.5	8	14		0.1860		0.0683	
	1650			-92.7	-94.8	9	8		0.1540		0.0503	
	1655			-93.0	-95.0	10	10		0.0390		0.0143	
	1700			-93.0	-93.9	11	15		0.0430		0.0178	
	1705			-91.5	-93.2	12	12		0.0003		0.0007	
	1710			-94.2	-94.2	12	5		0.0154		0.0065	

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
251	1405	2400	24	-85.5	-87.0	8	15	GSC4	0.0074	FRED	0.0264	QUAD DIV
	1410			-85.5	-86.5	10	16		0.0004		0.0021	
	1415			-85.3	-87.9	16	10		0.0064		0.0022	
	1420			-87.4	-87.8	14	14		0.0000		0.0014	
	1425			-84.2	-87.8	11	13		0.0001		0.0020	
	1430			-78.8	-82.0	9	10		0.0008		0.0039	
	1435			-81.2	-83.6	9	5		0.0018		0.0056	

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
252	1510	2400	24	-83.7	-86.0	8	12	GSC4	0.0011	FRED	0.0139	QUAD DIV
	1515			-83.9	-84.5	9	10		0.0001		0.0076	
	1520			-83.6	-85.5	14	11		0.0050		0.0263	
	1525			-82.0	-85.1	10	8		5.1200		0.0036	
	1530			-82.5	-86.0	12	10		0.0004		0.0024	
	1535			-84.1	-85.9	12	16		0.0001		0.0035	
	1540			-85.5	-88.2	10	11		0.0006			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
253	1610	2400	24	-84.9	-90.7	17	7	GSC4	0.0003	FRED	0.0003	QUAD DIV
	1615			-85.9		17			0.0001		0.0014	
	1620			-85.0	-90.0	26	15		0.0001		0.0021	
	1625			-84.0	-89.2	18	15		0.0001		0.0004	
	1630			-84.1	-90.1	14	18		0.0001		0.0009	
	1635			-83.4	-88.5	13	16		0.0004		0.0004	
	1640			-84.2	-90.4	13	15		0.0001		0.0018	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
254	1505	2400	24	-83.2	-81.2	28	20	GSC4		FRED		
	1510			-82.0	-80.2	22	23		0.0001		0.0757	
	1515			-83.2	-82.3	23	23		0.0003		0.0014	
	1520			-83.2	-82.7	28	24		0.0003		0.0000	
	1525			-82.9	-82.2	25	24		0.0140		0.0031	
	1530			-81.0	-80.3	20	20		0.0005		0.0001	
	1535			-80.7	-79.7	20	19		0.0022		0.0001	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
255	1605	2400	24	-81.1	-84.4	30	30	GSC4	0.0015	FRED	0.0011	
	1610			-81.8	-84.9	24	22		0.0097		0.0024	
	1615			-81.6	-84.9	22	30		0.0108		0.0021	
	1620			-80.9	-83.7	29	26		0.0000		0.0000	
	1625			-80.6	-83.4	29	32		0.0014		0.0000	
	1630			-80.4	-83.9	30	22		0.0001		0.0000	
	1635			-80.8	-84.5	28	20		0.0008		0.0000	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
256	1305	2400	24	-74.9	-76.0	56	61	GSC4	0.6750	FRED	0.3990	LOOP
	1310			-73.0	-73.9	56	46		0.5830		0.2760	
	1315			-73.7	-74.6	60	50		0.8910		0.3990	
	1320			-73.4	-74.4	47	41		0.3560		0.1580	
	1325			-76.1	-76.7	38	36		1.6200		0.1010	
	1330			-75.0	-75.6	42	40		0.6900		0.2640	
	1335			-76.2	-76.5	39	31		0.0000		0.0000	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
257	1455	2400	24	-81.6	-80.4	21	22	GSC4	0.0001	FRED	0.0000	LOOP
	1500			-77.9	-77.4	24	25		0.0000		0.0000	
	1505			-79.2	-79.1	8	8		0.0001		0.0000	
	1510			-83.1	-83.3	11	13		0.0003		0.0000	
	1515			-83.7	-83.7	22	20		0.0012		0.0000	
	1520			-82.2	-82.2	23	23		0.0093		0.0000	
	1525			-83.1	-81.3	21	19		0.0011		0.0000	

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
258	1600	2400	24	-78.7	-79.6	20	18	GSC4	0.0007	FRED	0.0000	LOOP
	1605			-79.2	-79.3	27	25		0.0000		0.0000	
	1610			-80.5	-81.7	16	12		0.0019		0.0000	
	1615			-81.6	-82.7	19	17		0.0021		0.0000	
	1620			-81.8	-83.4	17	20		0.0012		0.0001	
	1625			-81.4	-83.7	19	15		0.0069		0.0000	
	1630			-82.5	-83.6	21	18		0.0051		0.0000	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
259	1215	2400	24	-79.9	-80.9	17	14	GSC4	0.0104	FRED	0.0007	LOOP
	1220			-78.8	-80.2	18	20		0.0007		0.0003	
	1225			-77.0	-79.3	16	19		0.0004		0.0000	
	1230			-77.7	-79.3	16	19		0.0000		0.0000	
	1235			-77.6	-79.4	21	17		0.0014		0.0004	
	1240			-78.4	-79.5	18	20		0.0055		0.0000	
	1245			-78.8	-79.4	11	12		0.0044		0.0010	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
260	1325	2400	24	-76.9	-77.2	18	20	GSC4	0.0010	FRED	0.0007	LOOP
	1330			-76.1	-77.0	12	13		0.0026		0.0000	
	1335			-76.1	-76.6	20	16		0.0003		0.0000	
	1340			-75.3	-75.6	16	22		0.0007		0.0000	
	1345			-76.9	-78.4	19	18		0.0007		0.0001	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
261	1435	2400	24	-73.1	-74.8	17	18	GSC4	0.0003	FRED	0.0004	LOOP
	1440			-74.2	-75.3	10	9		0.0003		0.0006	
	1445			-75.7	-76.9	14	14		0.0001		0.0007	
	1450			-77.1	-78.5	16	11		0.0026		0.0032	
	1455			-77.5	-79.2	16	15		0.0000		0.0020	
	1500			-78.2	-79.8	13	15		0.0019		0.0027	
	1505			-78.7	-80.5	14	20		0.0000		0.0010	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
262	1540	2400	24	-84.7	-83.0	14	12	GSC4	0.0019	FRED	0.0135	LOOP
	1545			-86.0	-84.7	13	16		0.0000		0.0004	
	1550			-85.3	-83.5	18	15		0.0000		0.0115	
	1555			-85.3	-85.7	19	14		0.0000		0.0165	
	1600			-85.3	-83.5	19	17		0.0000		0.0074	
	1605			-87.0	-85.5	12	17		0.0000		0.0435	
	1610			-85.9	-85.0	23	20		0.0000		0.0246	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
263	1635	2400	24	-78.4	-80.3	15	16	GSC4	0.0000	FRED	0.0052	LOOP
	1640			-77.9	-79.2	19	19		0.0000		0.0013	
	1645			-80.2	-79.4	14	15		0.0000		0.0163	
	1650			-83.0	-82.5	9	8		0.0006		0.0065	
	1655			-82.6	-82.6	15	12		0.0000		0.0654	
	1700			-82.4	-82.4	16	14		0.0000		0.0428	
	1705			-82.2	-81.8	16	17		0.0000		0.0188	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
264	1225	2400	24	-78.8	-77.2	26	20	GSC4	0.0006	FRED	0.0069	LOOP
	1230			-79.0	-77.1	34	29		0.0038		0.0111	
	1235			-78.2	-77.3	28	26		0.0192		0.0095	
	1240			-77.8	-76.7	16	30		0.0001		0.0048	
	1245			-76.7	-76.4	23	20		0.0010		0.0036	
	1250			-76.6	-76.9	23	26		0.0336		0.0279	
	1255			-76.7	-76.5	21	24		0.0011		0.0090	

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
265	945	2400	24	-84.0	-82.4	19	19	GSC4	0.0004	FRED	0.0058	LOOP
	950			-82.6	-81.0	19	20		0.0004		0.0019	
	955			-83.7	-82.2	17	19		0.0003		0.0051	
	1000			-83.4	-82.1	22	17		0.0001		0.0052	
	1005			-84.6	-82.4	19	17		0.0003		0.0082	
	1010			-83.9	-82.0	16	17		0.0006		0.0070	
	1015			-84.1	-82.0	20	17		0.0001		0.0088	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
266	1050	2400	24	-81.7	-79.2	20	19	GSC4	0.0004	FRED	0.0075	LOOP
	1055			-81.7	-80.0	29	17		0.0232		0.0189	
	1100			-83.6	-79.8	15	19		0.0015		0.0150	
	1105			-82.7	-79.4	20	20		0.0006		0.0036	
	1110			-81.0	-77.6	16	22		0.0018		0.0048	
	1115			-81.4	-78.5	17	15		0.0001		0.0028	
	1120			-83.3	-79.8	18	21		0.0006		0.0026	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
267	1205	2400	24	-83.0	-80.4	26	25	GSC4	0.0042	FRED	0.0053	LOOP
	1210			-83.2	-80.5	31	21		0.0007		0.0140	
	1215			-83.3	-81.3	26	20		0.0000		0.0041	
	1220			-84.0	-81.9	18	23		0.0097		0.0075	
	1225			-83.9	-81.8	15	19		0.0024		0.0120	
	1230			-83.8	-82.7	16	18		0.0058		0.0118	
	1235			-84.6	-83.5	13	13		0.0164		0.0147	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
268	1405	2400	24	-79.7	-79.9	16	16	GSC4	0.0833	FRED	0.0105	LOOP
	1410			-79.5	-83.0	20	16		0.0556		0.0057	
	1415			-81.2	-82.0	11	15		0.0303		0.0040	
	1420			-78.9	-80.0	14	14		0.1049		0.0153	
	1425			-82.2	-83.0	11	9		0.0168		0.0028	
	1430			-81.6	-82.4	20	20		0.1795		0.0275	
	1435			-82.5	-83.3	18	18		0.0251		0.0055	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
269	1525			-80.8	-81.1	15	15	NONE		NONE		LOOP
	1530			-79.8	-80.0	14	14					
	1535			-80.5	-80.1	12	13					
	1540			-80.5	-80.4	11	12					
	1545			-80.2	-80.0	16	13					
	1550			-80.0	-79.5	9	12					
	1555			-80.0	-79.5	11	11					
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
270	1030	2400	24	-83.0	-82.2	18	21	GSC4	0.0049	FRED	0.0007	
	1035			-83.5	-82.2	18	17		0.0054		0.0060	
	1040			-83.2	-81.8	18	34		0.0072		0.0071	
	1045			-83.2	-81.7	20	18		0.0000		0.0036	
	1050			-83.1	-81.9	18	19		0.0000		0.0043	
	1055			-80.5	-80.5	19	14		0.0000		0.0016	
	1100			-82.8	-82.6	16	15		0.0001		0.0079	

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
271	1130	2400	24	-90.0	-88.0	15	12	GSC4	0.0000	FRED	0.0068	
	1135			-90.2	-87.2	19	21		0.0000		0.0051	
	1140			-89.0	-86.7	19	19		0.0010		0.0014	
	1145			-89.4	-87.4	17	20		0.0000		0.0118	
	1150			-90.0	-87.8	21	23		0.0001		0.0120	
	1155			-89.3	-87.0	22	24		0.0010		0.0032	
	1200			-88.9	-86.6	20	19		0.0001		0.0027	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
272	1225	2400	24	-86.7	-86.3	13	13	GSC4	0.0019	FRED	0.0000	
	1230			-86.1	-85.4	19	16		0.0000		0.0000	
	1235			-83.3	-84.5	14	14		0.0003		0.0000	
	1240			-85.5	-85.2	14	14		0.0001		0.0000	
	1245			-85.9	-85.3	12	15		0.0000		0.0000	
	1250			-85.3	-85.0	11	15		0.0003		0.0000	
	1255			-85.1	-84.5	13	14		0.0013		0.0000	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
273	1320	2400	24	-83.8	-83.0	12	12	GSC4	0.0000	FRED	0.0000	
	1325			-83.9	-82.2	12	12		0.0044		0.0000	
	1330			-83.5	-82.1	9	13		0.0056		0.0000	
	1335			-83.4	-81.2	13	13		0.0821		0.0278	
	1340			-83.0	-81.5	15	13		0.0139		0.0094	
	1345			-81.6	-80.2	15	15		0.0163		0.0038	
	1350			-82.4	-80.2	14	13		0.0006		0.0000	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
274	1455	2400	24	-89.3	-90.3	9	7	GSC4	0.0004	FRED	0.0000	
	1500			-89.4	-89.3	14	13		0.0118		0.0000	
	1505			-88.3	-89.0	6	8		0.3489		0.0000	
	1510			-87.6	-88.2	9	11		0.0118		0.0019	
	1515			-88.5	-88.9	10	9		0.0010		0.0000	
	1520			-90.2	-90.5	12	11		0.0219		0.0004	
	1525			-91.3	-90.8	9	9		0.0369		0.0000	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
275	1610	2400	24	-90.0	-90.8	13	14	GSC4	0.0308	FRED	0.0001	
	1615			-90.5	-91.3	11	14		0.0219		0.0000	
	1620			-91.5	-90.2	16	12		0.0013		0.0000	
	1625			-89.8	-91.3	17	17		0.0100		0.0000	
	1630			-90.2	-90.5	15	13		0.0157		0.0000	
	1635			-91.0	-90.5	23	14		0.0039		0.0000	
	1640			-91.5	-91.5	15	14		0.0328		0.0000	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
278	1310	2400	24		-78.7		34	GSC4	0.0003	FRED	0.0000	QUAD DIV
	1315				-77.3		68		0.0090		0.0000	
	1320				-76.2		49		0.0000		0.0000	
	1325				-76.3		42		0.0000		0.0000	
	1330				-77.8		45		0.0000		0.0000	
	1335				-78.0		67		0.0000		0.0000	
	1340				-78.9		69		0.0000		0.0000	

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
279	1405	2400	24	-87.1	-86.6	51	43	GSC4	0.0004	FRED	0.0000	QUAD DIV
	1410			-88.7	-87.0	42	58		0.0000		0.0000	
	1415			-89.3	-85.8	58	54		0.0001		0.0000	
	1420			-87.2	-85.9	52	49		0.0000		0.0000	
	1425			-86.2	-84.7	51	43		0.0001		0.0000	
	1430			-85.0	-83.8	52	44		0.0003		0.0000	
	1435			-83.9	-84.2	36	32		0.0001		0.0001	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
280	1505	2400	24	-90.7	-92.5	30	39	GSC4	0.0607	FRED	0.0895	QUAD DIV
	1510			-91.0	-92.1	39	36		0.0140		0.0517	
	1515			-90.7	-92.8	42	32		0.0279		0.0477	
	1520			-91.6	-91.9	46	51		0.0003		0.0105	
	1525			-90.2	-90.2	42	42		0.0003		0.0108	
	1530			-88.7	-89.2	33	33		0.0000		0.0023	
	1535			-89.2	-88.8	36	38		0.0001		0.0012	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
281	1605	2400	24	-91.9	-90.3	39	39	GSC4	0.0000	FRED	0.0010	QUAD DIV
	1610			-91.5	-93.3	38	25		0.0170		0.0003	
	1615			-94.0		32			0.0049		0.0232	
	1620			-95.2	-92.8	38	34		0.0003		0.0052	
	1625			-95.5	-92.5	39	37		0.0004		0.0068	
	1630			-95.4	-92.1	39	37		0.0003		0.0065	
	1635			-95.5	-93.0	36	39		0.0019		0.0144	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
282	1110	2400	24	-91.6	-90.4	57	84	GSC4	0.0012	FRED	0.0088	
	1115			-93.2	-90.3	71	81		0.0022		0.0082	
	1120			-92.4	-90.4	64	52		0.0006		0.0105	
	1125			-92.4	-90.5	63	66		0.0010		0.0077	
	1130			-93.5		77			0.0017		0.0130	
	1135			-89.7	-88.0	82	80		0.0006		0.0019	
	1140			-90.3	-88.8	75	76		0.0097		0.0043	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
283	1235	2400	24	-88.7	-87.2	117	93	GSC4	0.0003	FRED	0.0006	
	1240			-87.8	-86.8	119	99		0.0007		0.0002	
	1245			-87.5	-85.8	91	91		0.0003		0.0003	
	1250			-88.3	-86.5	95	92		0.0010		0.0005	
	1255			-88.6	-87.0	90	87		0.0006		0.0023	
	1300			-87.2	-85.0	68	61		0.0004		0.0014	
	1305			-84.3	-82.5	33	32		0.0012		0.0008	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
284	1350	2400	24	-89.0	-87.5	78	66	GSC4	0.0040	FRED	0.0014	LOOP
	1355			-88.4	-86.7	62	60		0.0053		0.0018	
	1400			-88.3	-86.9	57	55		0.0038		0.0012	
	1405			-88.4	-86.9	60	51		0.0121		0.0009	
	1410			-88.6	-86.9	59	55		0.0044		0.0005	
	1415			-89.2	-87.2	64	60		0.0038		0.0008	
	1420			-88.8	-87.6	75	78		0.0050		0.0009	

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
285	1500	2400	24	-85.9	-86.2	81	83	GSC4	0.0000	FRED	0.0003	LOOP
	1505			-86.6	-86.8	93	77		0.0001		0.0003	
	1510			-85.5	-85.9	82	88		0.0000		0.0003	
	1515			-85.2	-85.1	73	72		0.0001		0.0002	
	1520			-83.7	-84.0	58	62		0.0000		0.0000	
	1525			-84.8	-84.8	56	56		0.0000.		0.0001	
	1530			-84.3	-85.0	47	58		0.0000		0.0000	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
286	1605	2400	24	-80.7	-80.3	28	27	GSC4	0.0006	FRED	0.0000	LOOP
	1610			-81.2	-80.3	31	27		0.0000		0.0018	
	1615			-83.1	-84.1	50	38		0.0007		0.0006	
	1620			-84.3	-84.9	67	62		0.0000		0.0007	
	1625			-84.4	-84.6	62	72		0.0000		0.0006	
	1630			-83.8	-83.6	59	67		0.0021			
	1635			-83.3	-83.6	50	56		0.0000		0.0139	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
287	1250	2400	24	-89.5	-90.1	60	50	GSC4	3.6670	FRED	23.7519	LOOP
	1255			-89.5	-90.0	82	82		2.9155		20.8350	
	1300			-87.7	-87.4	98	84		5.3039		15.4179	
	1305			-87.0	-88.7	88	91		1.5855		12.6399	
	1310			-86.3	-86.3	98	86		1.2625		8.7465	
	1315			-86.3	-86.5	84	78		1.3337		6.6714	
	1320			-85.7	-85.4	90	76		0.4424		5.2504	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
290	1650	2400	24	-81.6	-82.7	47	46	GSC4	0.0403	FRED	0.0236	LOOP
	1655			-81.3	-82.2	43	43		0.0087		0.0240	
	1700			-81.2	-82.9	55	50		0.0087		0.0165	
	1705			-81.4	-82.0	50	43		0.0458		0.0422	
	1710			-81.2	-81.2	25	22		0.0140		0.0210	
	1715			-80.8	-80.7	21	26		0.0172		0.0135	
	1720			-79.8	-80.7	25	21		0.0028		0.0086	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
291	1105	2400	24	-91.3	-91.3	27	19	GSC4	0.0000	FRED	0.0082	
	1110			-91.6	-91.4	36	34		0.0000		0.0054	
	1115			-91.5	-91.5	49	43		0.0001		0.0050	
	1120			-91.2	-91.4	45	42		0.0000		0.0033	
	1125			-90.9	-91.4	60	62		0.0014		0.0196	
	1130			-91.2	-91.6	44	49		0.0015		0.0238	
	1135			-90.2	-91.0	54	38		0.0115		0.0636	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
292	1205	2400	24	-96.3	-96.2	25	20	GSC4	0.0106	FRED	0.1135	QUAD DIV
	1210			-96.9	-96.4	37	29		0.0406		0.1354	
	1215			-93.9	-95.4	48	38		0.0022		0.0460	
	1220			-96.1	-95.9	37	34		0.0039		0.0781	
	1225			-92.7	-93.5	55	40		0.0007		0.0283	
	1230			-92.8	-93.5	45	35		0.0031		0.0385	
	1235			-94.3	-94.3	38	42		0.0007		0.0337	

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
293	1305	2400	24	-97.0	-97.3	26	18	GSC4	0.0406	FRED	0.1339	QUAD DIV
	1310			-98.0	-96.6	37	32		0.0251		0.1024	
	1315			-95.8		50			0.0088		0.0633	
	1320			-96.0	-96.1	43	45		0.0232		0.0983	
	1325			-92.9	-95.5	49	38		0.0056		0.0406	
	1330			-96.0	-97.2	28	27		0.0708		0.1092	
	1335			-95.0	-96.4	30	22		0.1404		0.1040	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
295	1505	2400	24		-92.5		34	GSC4	0.0015	FRED	0.0002	QUAD DIV
	1510			-93.5	-93.5	43	36		0.0015		0.0008	
	1515			-93.7	-91.7	41	40		0.0014		0.0000	
	1520			-92.6	-93.3	43	43		0.0004		0.0008	
	1525			-93.4	-91.3	47	33		0.0008		0.0005	
	1530			-92.2	-91.7	41	25		0.0026		0.0019	
	1535			-93.1	-92.4	33	31		0.0006		0.0008	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
296	1615	2400	24	-100.2		19		GSC4	2.1724	FRED	0.7576	QUAD DIV
	1620			-101.0		25			1.5091		0.1749	
	1625			-102.3		17			1.1636		0.3518	
	1630			-100.2		23			0.7156		0.2585	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
297	1040	2400	24	-92.6	-95.2	37	29	GSC4	59.3103	FRED	11.6312	LOOP
	1045			-92.5	-95.4	30	28		19.4460		7.8120	
	1050			-95.3	-96.1	31	27		25.5576		9.7216	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
298	1155	2400	24	-93.6	-93.0	29	25	GSC4	38.0586	FRED	12.7510	LOOP
	1200			-93.3	-93.2	23	18		35.4195		13.0844	
	1205			-96.6	-93.6	33	31		42.0867		15.9735	
	1210			-95.3	-94.3	32	30		44.5869		18.7515	
	1215			-93.5	-94.8	23	24		15.1401		38.4753	
	1220			-91.7	-91.6	21	21		11.8065		31.9470	
	1225			-97.0	-95.6	20	20		15.2790		43.0590	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
299	1255	2400	24	-97.0	-93.4	21	20	GSC4	14.7234	FRED	4.0796	LOOP
	1300			-95.5	-93.4	24	26		15.1401		3.8192	
	1305			-96.7	-93.5	31	23		17.4597		4.3574	
	1310			-93.7	-92.8	33	32		13.7928		3.4720	
	1315			-93.4	-92.4	28	25		12.6816		3.5241	
	1320				-93.2		19		16.7652		3.9234	
	1325			-96.0	-93.5	25	13		19.3071		4.4789	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
300	1405	2400	24	-98.1	-95.3	18	16	GSC4	0.3939	FRED	0.4914	LOOP
	1410			-99.1	-97.0	23	15		0.8680		0.8297	
	1415			-100.5		17			0.4577		0.6628	
	1420				-97.9		15		0.5652		0.4661	
	1425			-99.4		20			0.5453		0.7261	
	1430			-100.5		21			0.5173		0.6677	
	1435			-98.3		20			0.3832		0.4754	

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
301	1550			-100.5		23		NONE		NONE		LOOP
	1605			-99.8		19						
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
303	1255	2400	24	-80.9	-80.7	27	24	GSC4	0.9681	NONE		LOOP
	1300			-79.9	-79.9	22	20		1.8470			
	1305			-80.3	-80.0	17	18		0.1631			
	1310			-82.3	-82.1	23	22		0.0083			
	1315			-83.9	-83.0	30	22		1.5608			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
304	1425	2400	24	-80.0	-80.4	36	38	GSC4	0.0361	NONE		LOOP
	1430			-80.0	-79.8	35	37		0.0079			
	1435			-81.6	-81.4	27	25		0.1567			
	1440			-80.7	-80.5	37	27		0.0638			
	1445			-80.5	-80.3	41	36		0.0575			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
305	1515	2400	24	-74.8	-74.6	20	20	GSC4	0.0001	NONE		LOOP
	1520			-80.3	-79.5	15	16		0.0108			
	1525			-80.3	-80.1	36	34		0.0300			
	1530			-78.7	-78.3	23	29		0.0061			
	1535			-76.0	-76.0	38	28		0.0006			
	1540			-73.3	-72.5	22	17		0.0035			
	1545			-75.0	-75.0	21	21		0.0056			
	1550			-75.3	-74.5							
	1555			-74.9	-75.1							
	1600			-74.9	-74.9							
	1605			-73.3	-75.3							
	1610			-77.6	-77.4							
	1615			-77.5	-77.5							
	1620			-76.3	-76.7							
	1625			-74.5	-74.1							
	1630			-74.6	-74.4							
	1635			-77.0	-77.0							
	1640			-76.5	-76.5							
	1645			-77.4	-78.3							
	1650			-77.4	-77.8							
	1655			-78.9	-78.9							
	1700			-79.4	-79.4							
	1705			-80.9	-79.9							
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
306	1220	2400	24	-85.7	-90.3	99	81	GSC4	0.0078	FRED	0.0007	LOOP
	1225			-85.7	-90.0	92	83		0.0179		0.0003	
	1230			-86.6	-91.0	89	67		0.0083		0.0000	
	1235			-87.0	-91.4	96	77		0.0825		0.0057	
	1240			-86.8	-91.4	102	90		0.0550		0.0022	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
307	1305	2400	24	-82.4	-89.0	75	95	GSC4	0.0031	FRED	0.0001	LOOP
	1310			-82.0	-88.4	74	69		0.0046		0.0003	
	1315			-81.2	-87.8	69	50		0.0039		0.0003	
	1320			-81.6	-88.2	82	75		0.0139		0.0017	
	1325			-83.5	-89.9	78	68		0.0136		0.0000	

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
308	1350	2400	24	-79.6	-86.0	58	94	GSC4	0.0106	FRED	0.0004	LOOP
	1355			-79.2	-86.6	96	98		0.0022		0.0000	
	1400			-77.8	-84.9	71	84		0.0014		0.0000	
	1405			-75.9	-83.1	93	96		0.0003		0.0000	
	1410			-75.7	-81.1	95	96		0.0014		0.0003	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
309	1500	2400	24	-94.2	-90.4	85	61	GSC4	0.0280	FRED	0.0003	LOOP
	1505			-92.3	-89.7	121	112		0.0169		0.0001	
	1510			-93.0	-90.4	124	110		0.0210		0.0118	
	1515			-93.1	-90.3	118	117		0.0210		0.0047	
	1520			-91.8	-88.8	108	111		0.0032		0.0008	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
310	1550	2400	24	-90.2	-87.0	104	94	GSC4	0.0035	NONE		LOOP
	1555			-89.4	-86.8	106	87		0.0024			
	1600			-89.5	-87.2	85	79		0.0056			
	1605			-87.6	-85.0	96	85		0.0108			
	1610			-86.0	-84.8	65	54		0.0140			
	1615			-87.1	-86.7	85	61		0.0014			
	1620			-87.9	-88.1	103	79		0.0072			
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
312	1205	2400	24	-83.0	-85.0	118	128	GSC4	0.0067	FRED	0.0001	NON DIV
	1210			-82.7	-84.7	138	145		0.0090		0.0004	
	1215			-82.4	-84.6	121	119		0.0293		0.0036	
	1220			-80.1	-80.3	68	69		0.0083		0.0010	
	1225			-82.7	-84.5	99	86		0.0196		0.0004	
	1230			-81.9	-83.9	118	113		0.0104		0.0056	
	1235			-83.0	-84.6	132	107		0.0081		0.0019	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
313	1315	2400	24	-83.5	-84.9	97	87	GSC4	0.0354	FRED	0.0040	NON DIV
	1320			-83.7	-85.1	94	94		0.0047		0.0000	
	1325			-84.0	-85.0	103	91		0.0376		0.0079	
	1330			-83.3	-84.7	87	80		0.0174		0.0015	
	1335			-82.2	-84.2	94	90		0.0222		0.0022	
	1340			-81.7	-83.9	91	73		0.0092		0.0004	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
314	1415	2400	24	-77.0	-90.8	100	73	GSC4	0.7920	FRED	0.0424	NON DIV
	1420			-76.5	-90.5	144	125		0.7750		0.0065	
	1425			-75.1	-90.1	123	117		0.2390		0.0081	
	1430			-76.4		137			0.3190		0.0043	
	1435			-76.4	-90.4	133	118		0.4470		0.0140	
	1440			-76.2	-90.4	151	142		0.1820		0.0014	
	1445			-75.7		177			0.2710		0.0038	
RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
316	1615	2400	24	-94.1	-75.2	29	19	GSC4	0.1550	FRED	0.1190	LOOP
	1620			-83.3	-78.3	61	30		0.0997		0.2360	
	1625				-78.2		58		0.1140		0.1050	
	1630				-79.6		61		0.1310		0.1540	
	1635				-78.5		56		0.1650		0.1550	
	1640			-83.8	-77.0	37	46		0.0664		0.1070	

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RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
317	1105			-72.5		23		NONE		NONE		LOOP
	1110			-72.7		34						
	1130			-73.0		39						
	1135			-75.5	-74.8	34	37					

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
318	1230			-89.8	-91.2	16	8	NONE		NONE		LOOP
	1235			-89.6	-91.2	31	19					
	1240			-90.2	-92.4	28	23					
	1245			-90.4	-92.8	30	31					
	1250			-89.2	-90.6	31	26					
	1255			-88.7	-90.5	30	23					
	1300			-88.3	-90.5	26	25					

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
319	1350	2400	24	-74.2	-73.6	13	15	GSC4	0.0190	GSC4	0.0033	LOOP
	1355			-73.0	-72.2	24	23		0.0129		0.0067	
	1400			-73.4	-72.0	25	27		0.0190		0.0136	
	1405			-75.1	-73.5	26	24		0.0104		0.0010	
	1410			-74.2	-73.4	33	29		0.0221		0.0022	

RUN	TIME	RATE	CHS	MEDIANS		MEDIAN CROSSINGS		TYPE	ERROR	TYPE	ERROR	REMARKS
320	1425	2400	24	-81.3	-85.9	37	22	GSC4	0.0087	GSC4	0.0028	LOOP
	1430			-84.7	-86.2	33	27		0.0065		0.0006	
	1435			-83.3	-85.7	33	36		0.0207		0.0035	

Table IV

Run #	Time	Tracks	Fade Rates
36	1425-1430	2, 3	71, 72
42	1005-1010	2, 3	39, 29
	1025-1030	2, 3	22, 23
44	1205-1210	2, 3	20, 12
127	1645-1650	4, 5	106, 76
134	1645-1650	4, 5	63, 57
142	1300-1305	4, 5	8, 9
164	1305-1310	4, 5	18, 14
215	1320-1325	4, 5	16, 19
233	1540-1545	4, 5	17, 23
256	1310-1315	4, 5	52, 43

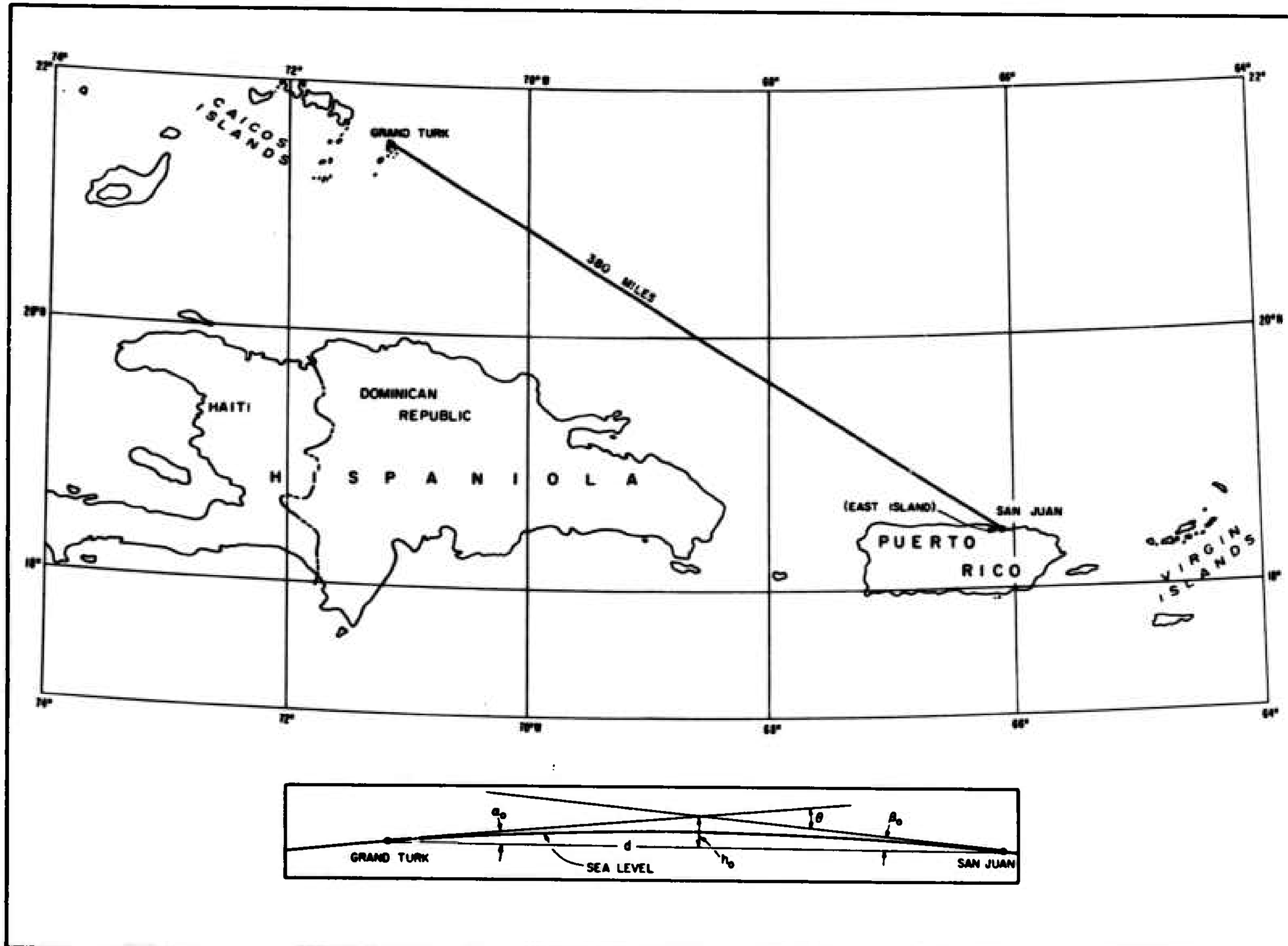

Figure 1. Maps of the Grand Turk - East Island path and side view showing path geometry.

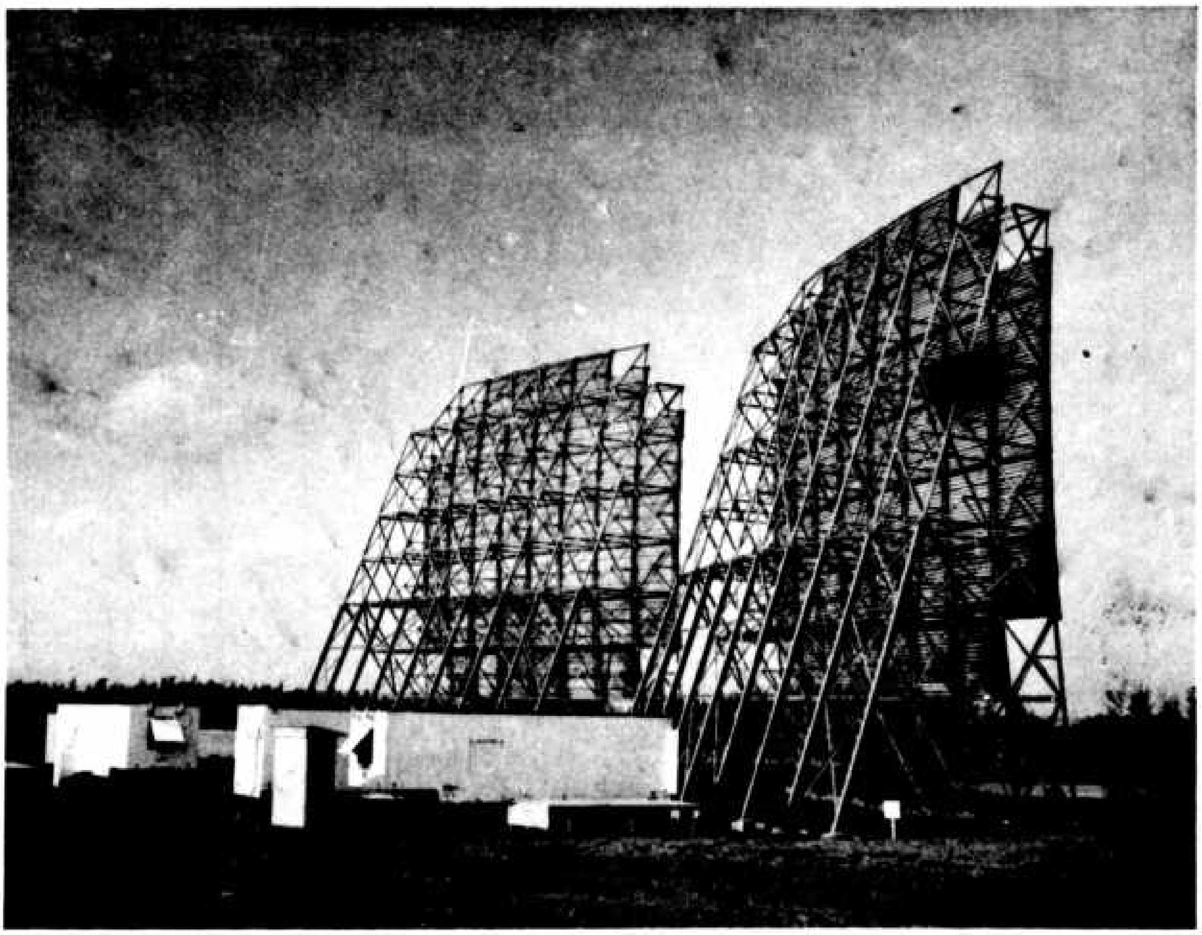

Figure 2. Sixty (60) ft. antennas at East Island site.

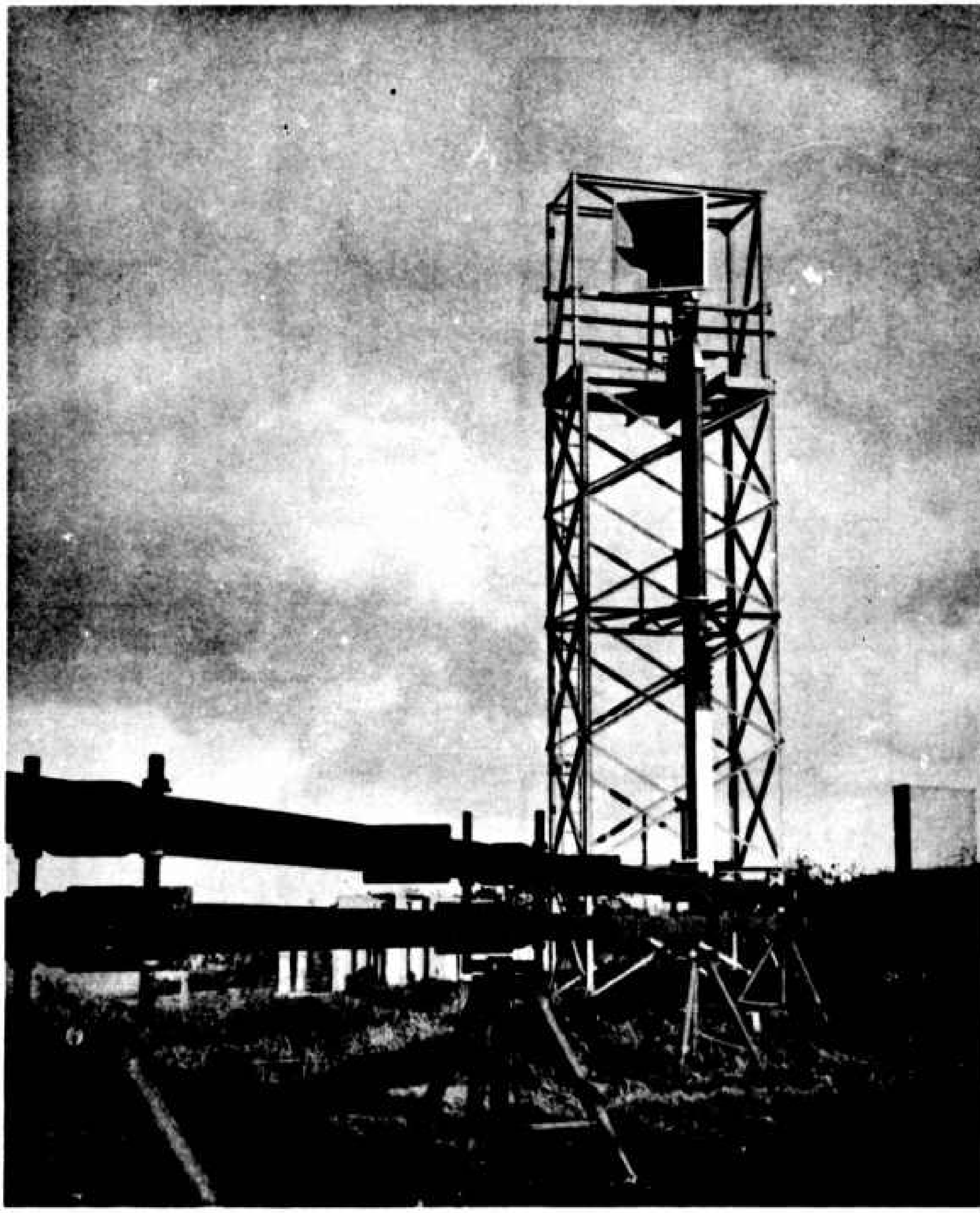

Figure 3. Feed horn and wave guide section at East Island site.

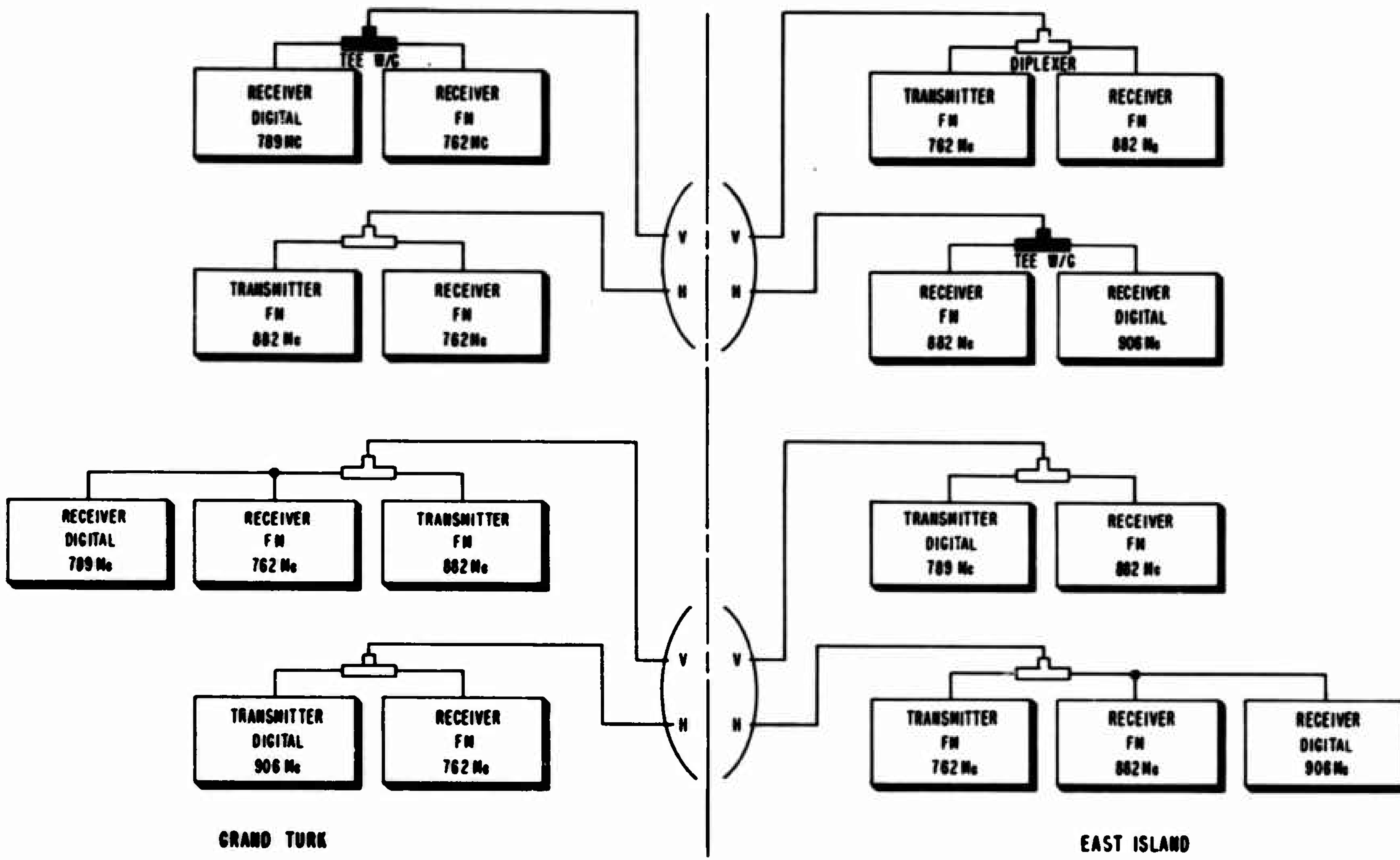

Figure 4. Schematic of available transmitting and receiving facilities.

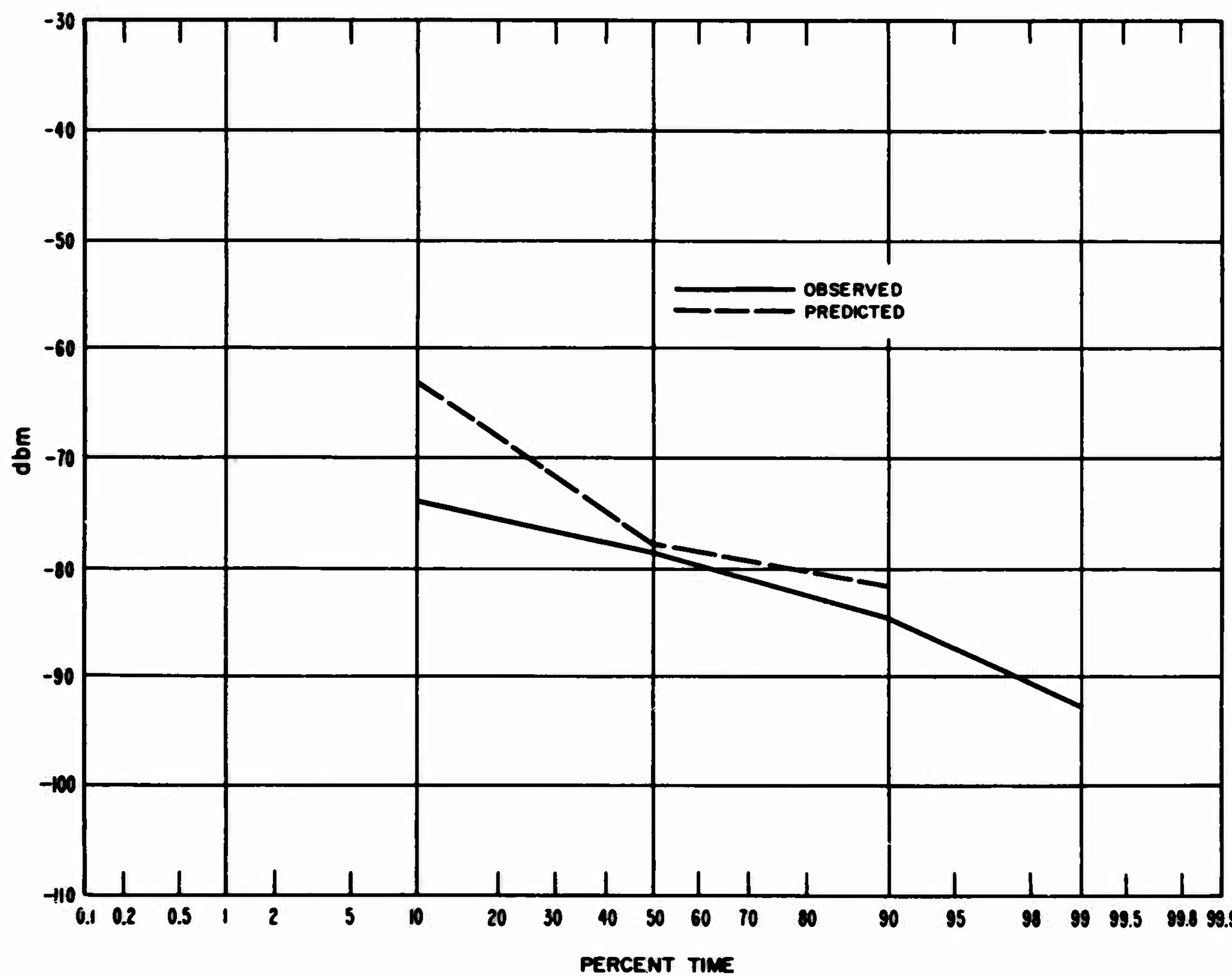

Figure 5. Cumulative distribution of predicted and observed received power for the period August, September and October 1962 at the East Island site.

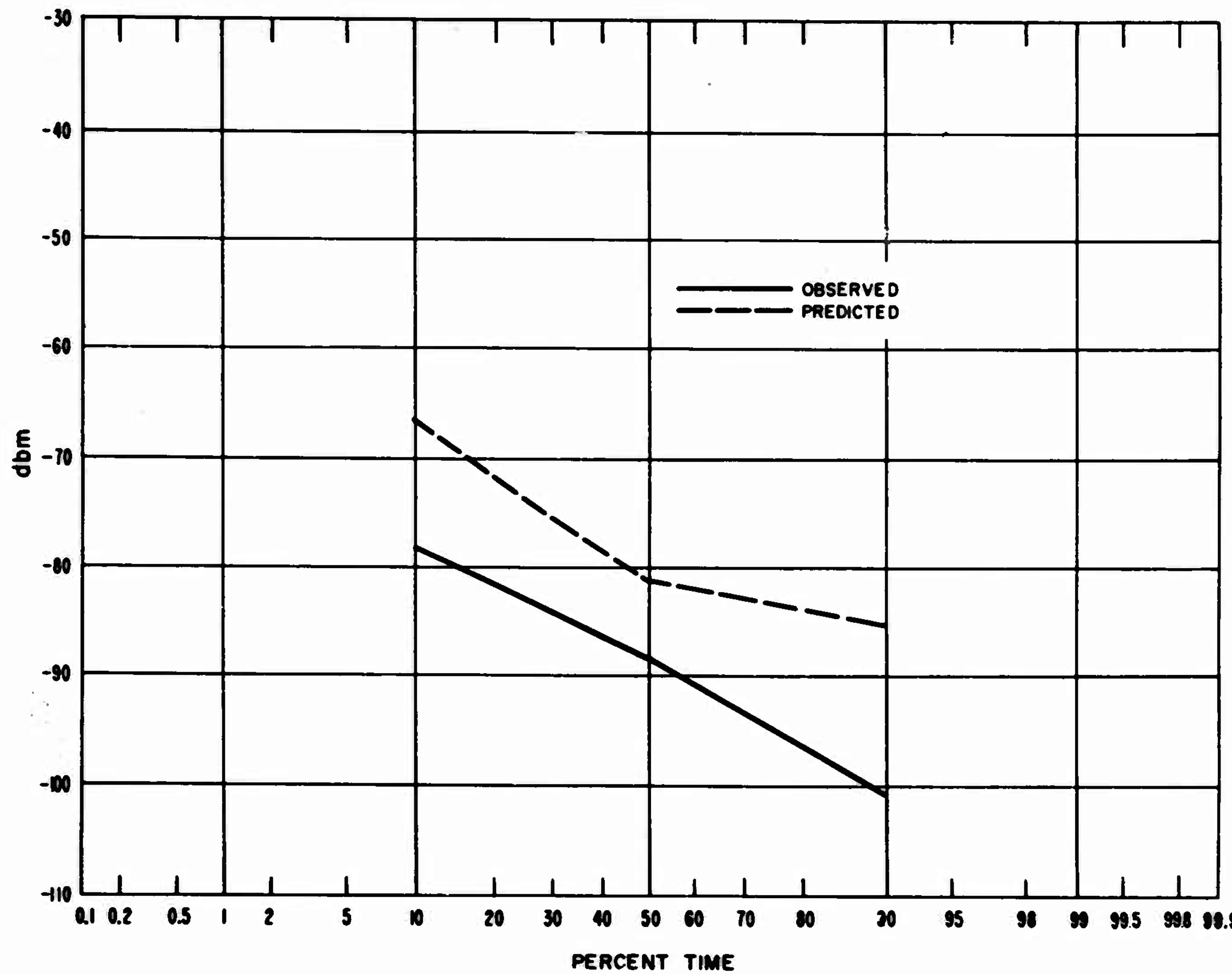

Figure 6. Cumulative distribution of predicted and observed received power for the period November and December 1962 - January 1963 at the East Island site.

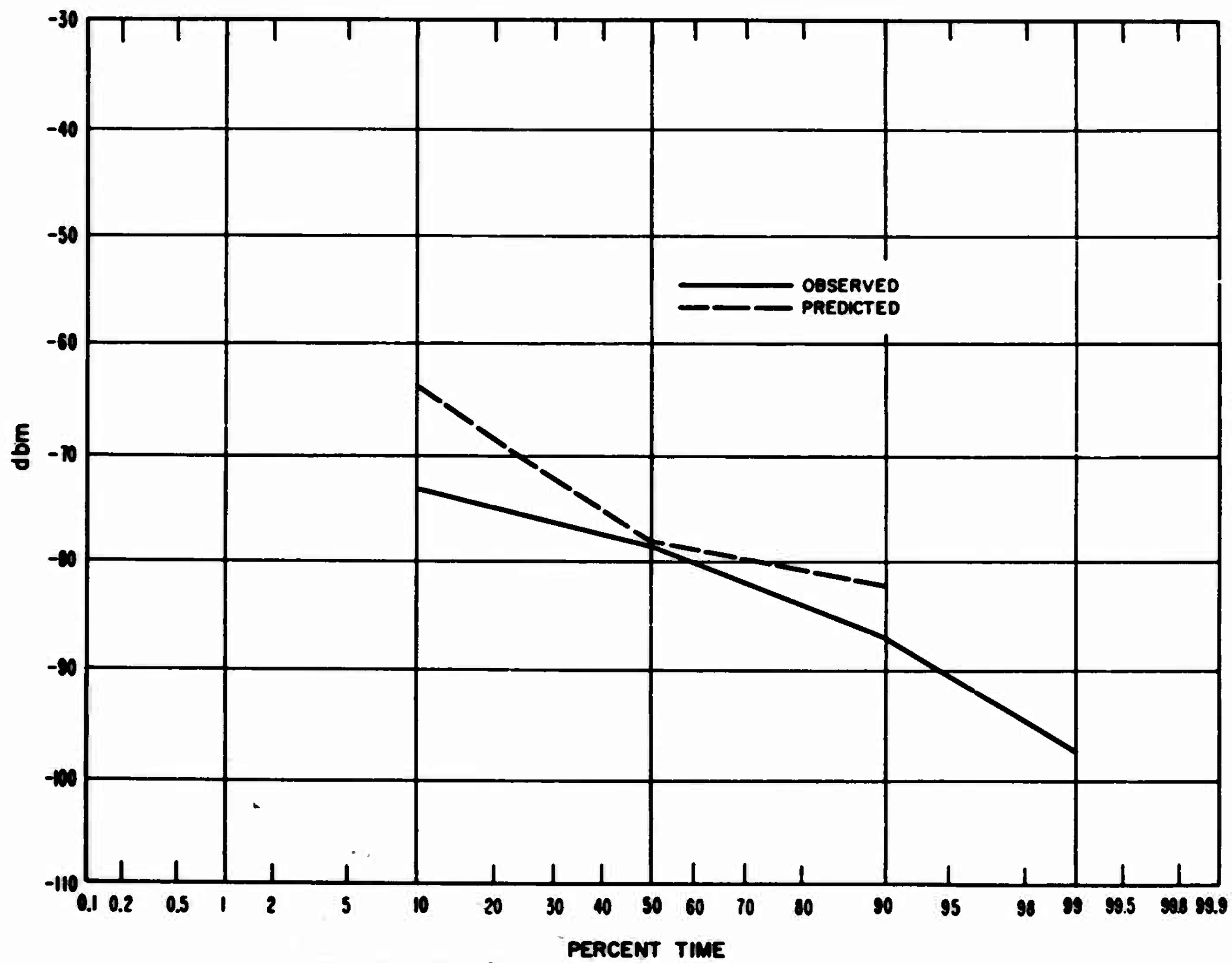

Figure 7. Cumulative distribution of predicted and observed received power for the period May, June, July, August and September 1963 at the Grand Turk site.

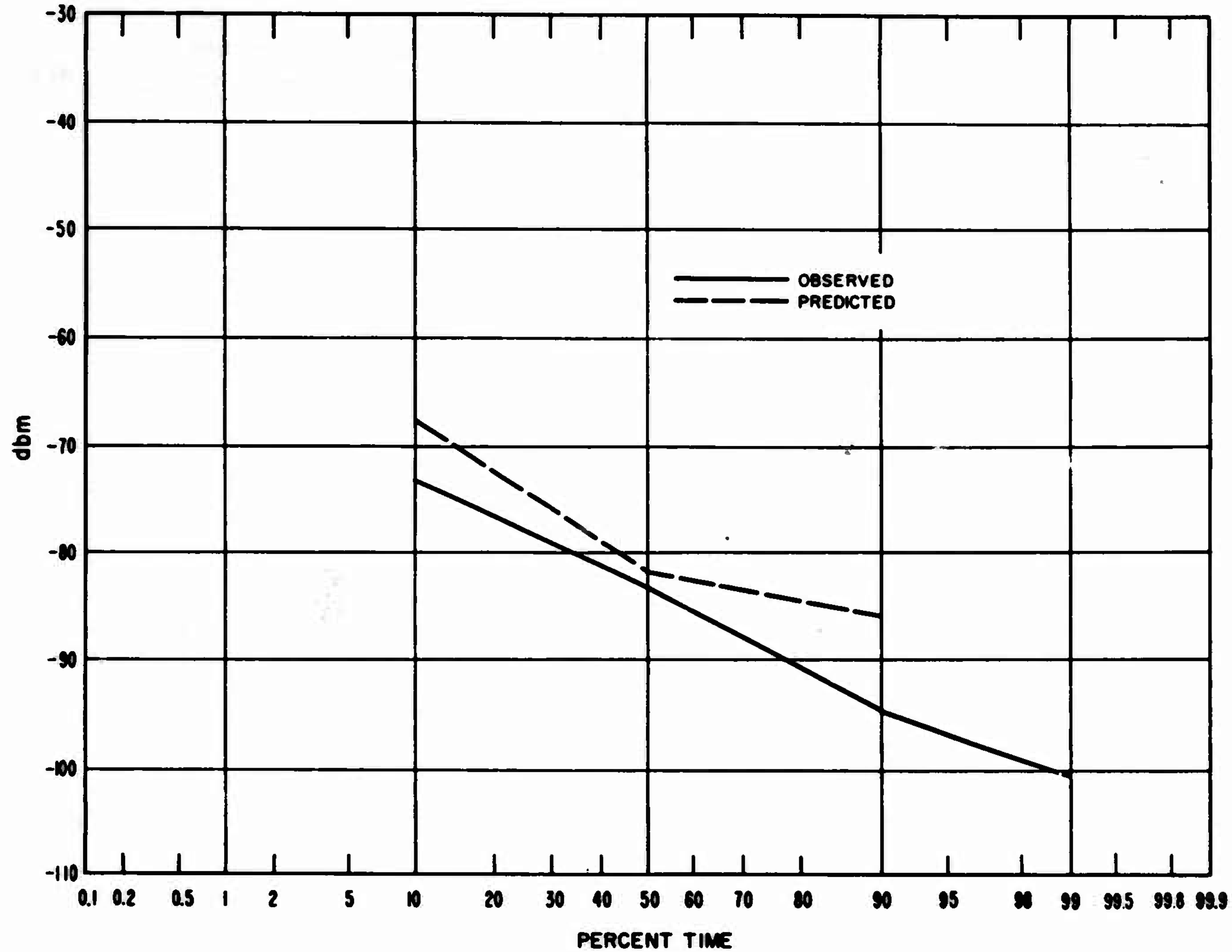

Figure 8. Cumulative distribution of predicted and observed received power for the period February, March and April 1963 at the Grand Turk site.

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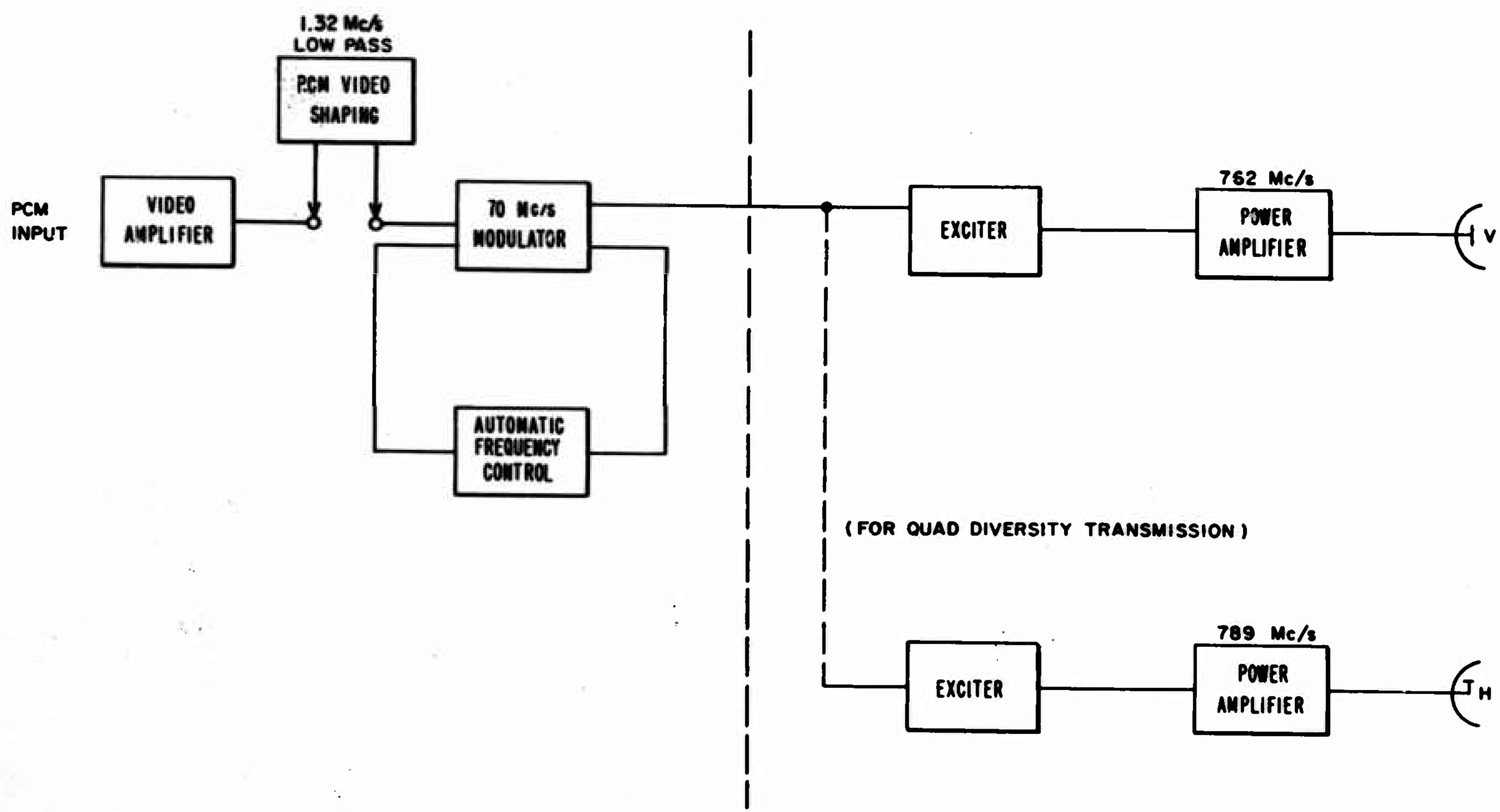


Figure 9. Block diagram - Equipment for the PCM interface with AN/MRC-98 Exciter.

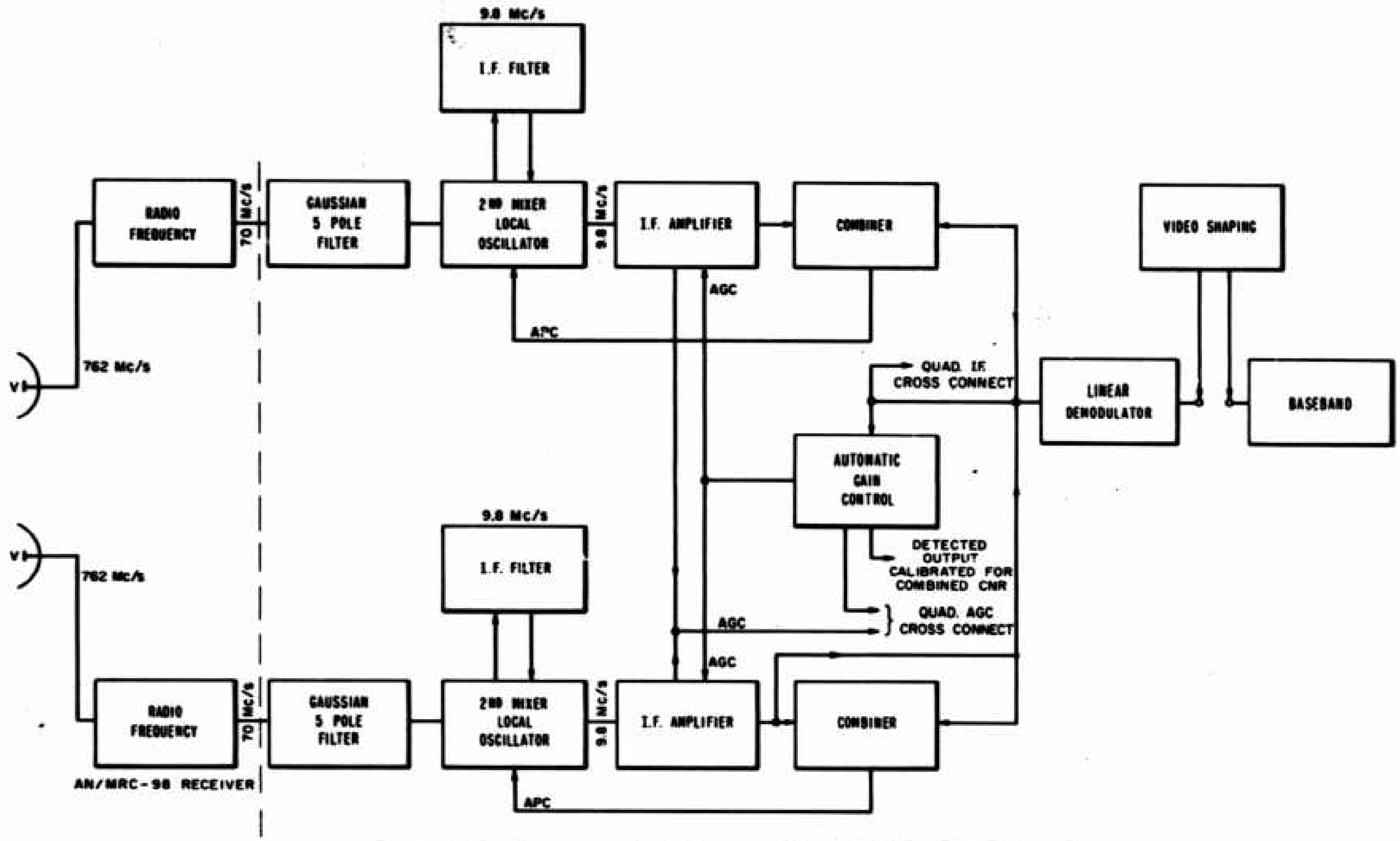


Figure 10. Block diagram - Equipment for AN/MRC-98 Receiver interface with PCM for dual diversity.

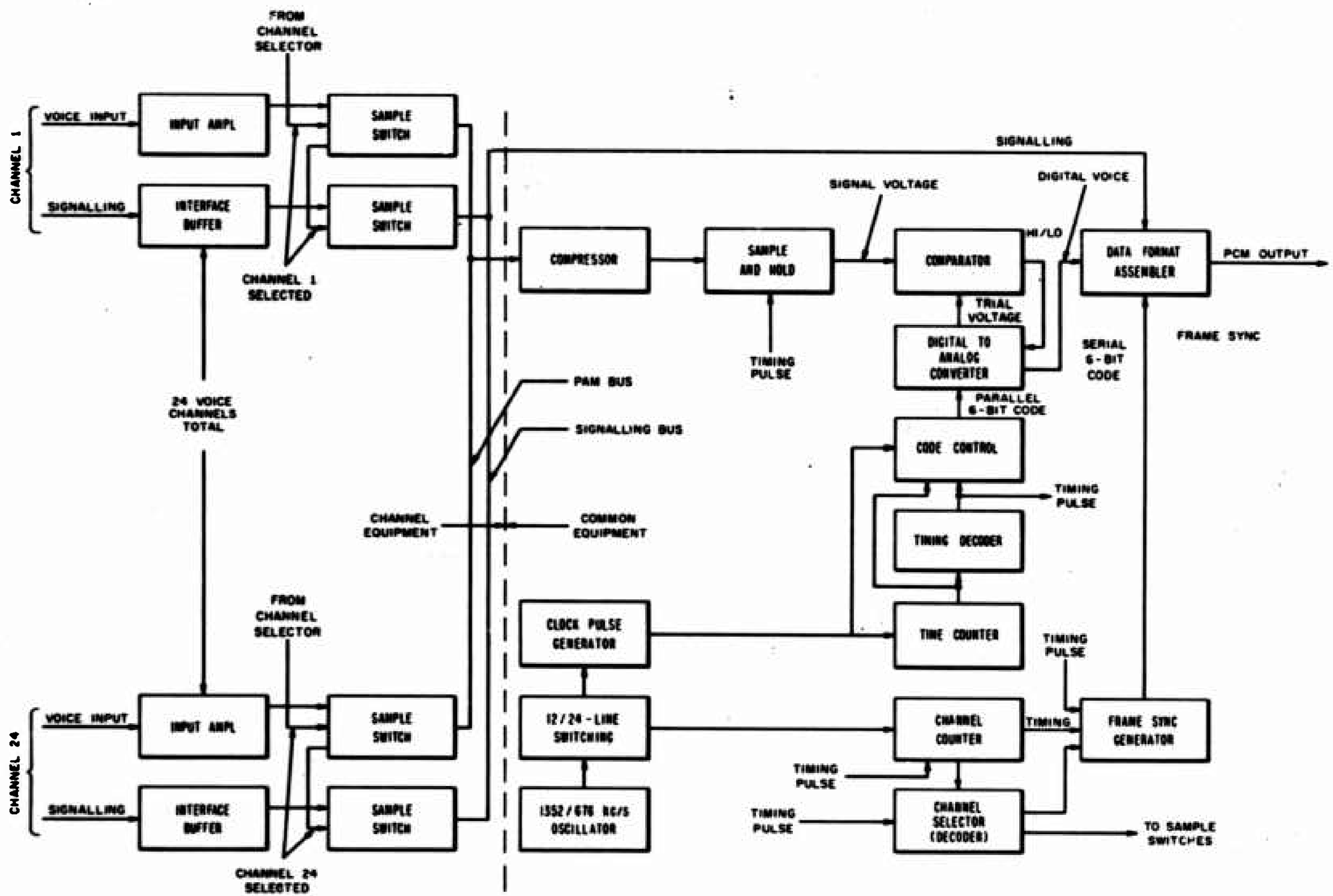


Figure 11. Block diagram - PCM Multiplexer.

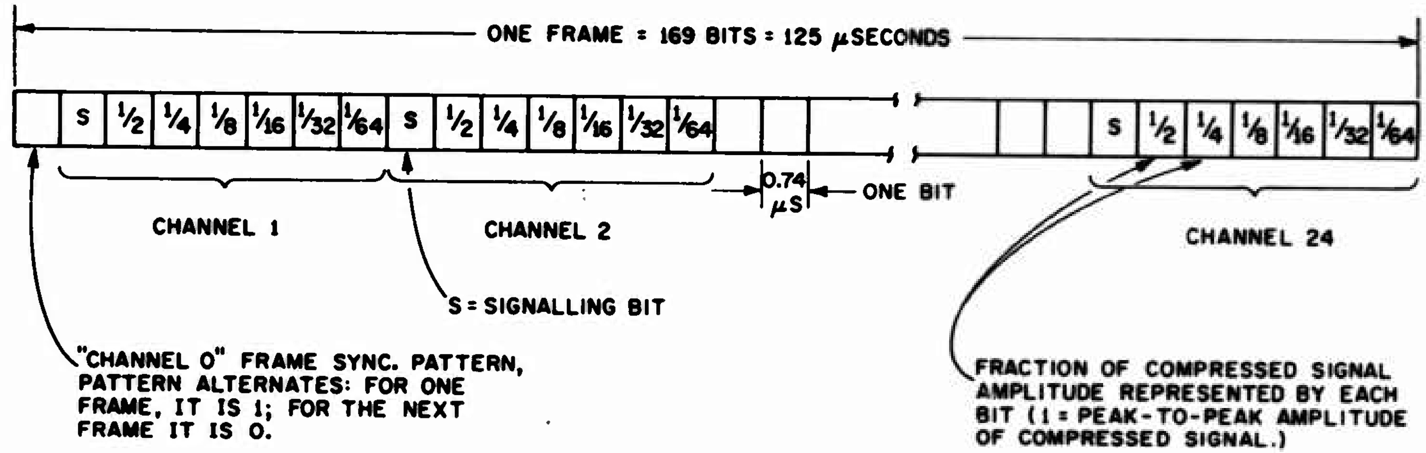


Figure 12. Block diagram - PCM Data format.

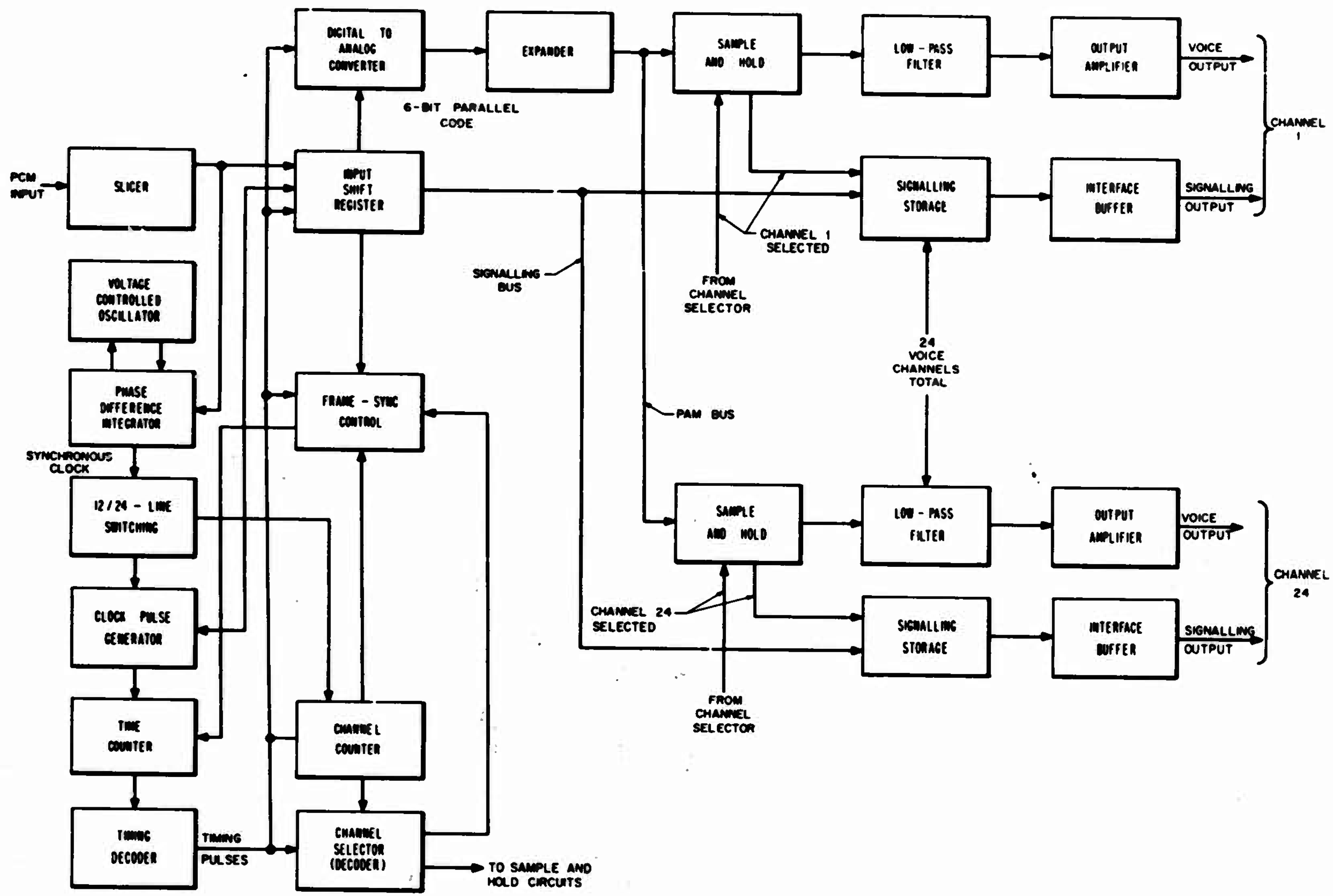


Figure 13. Block diagram - PCM Demultiplexer.

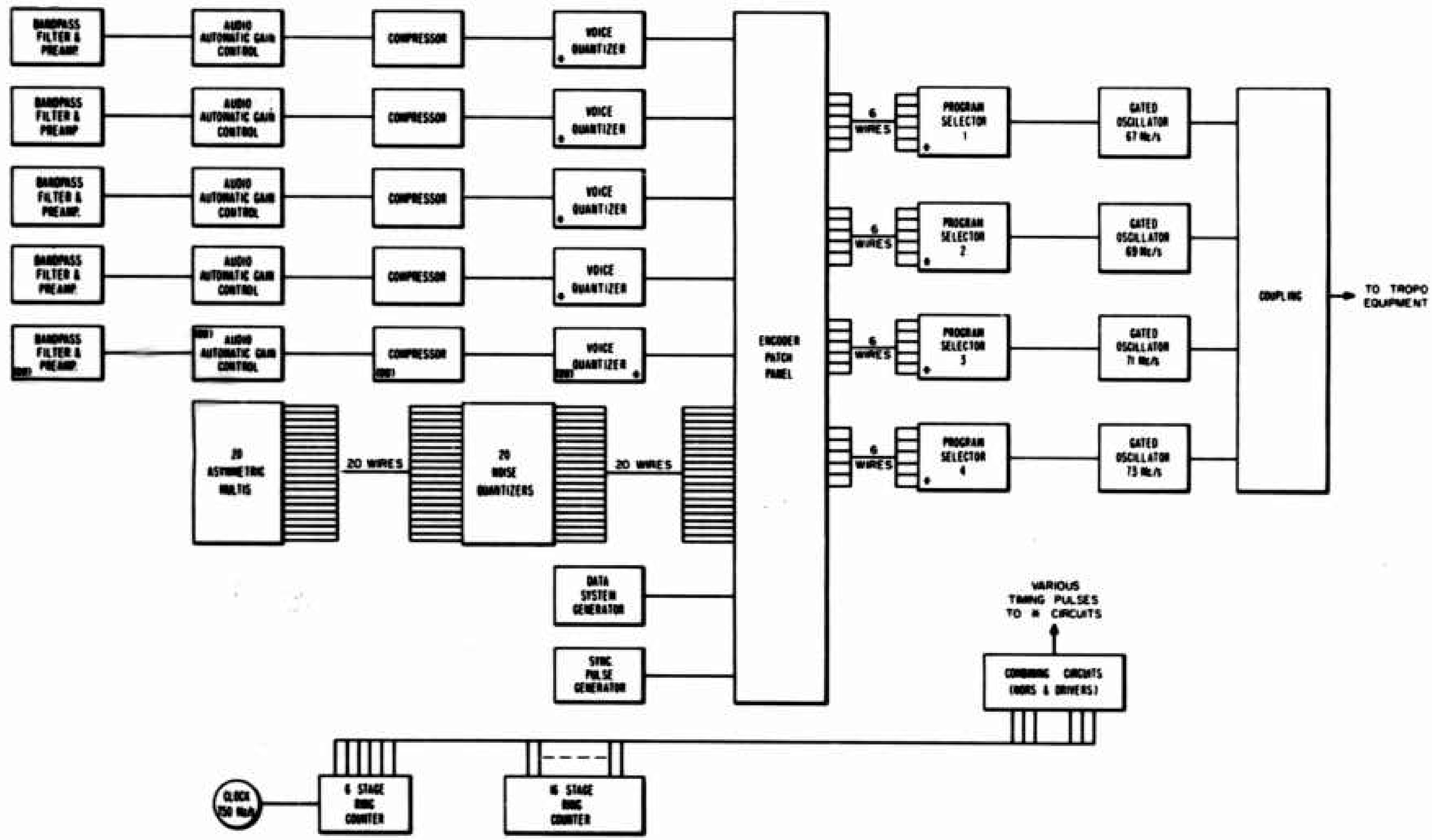


Figure 14. Block diagram - Encoding Tropo Circuit for AMR tests.

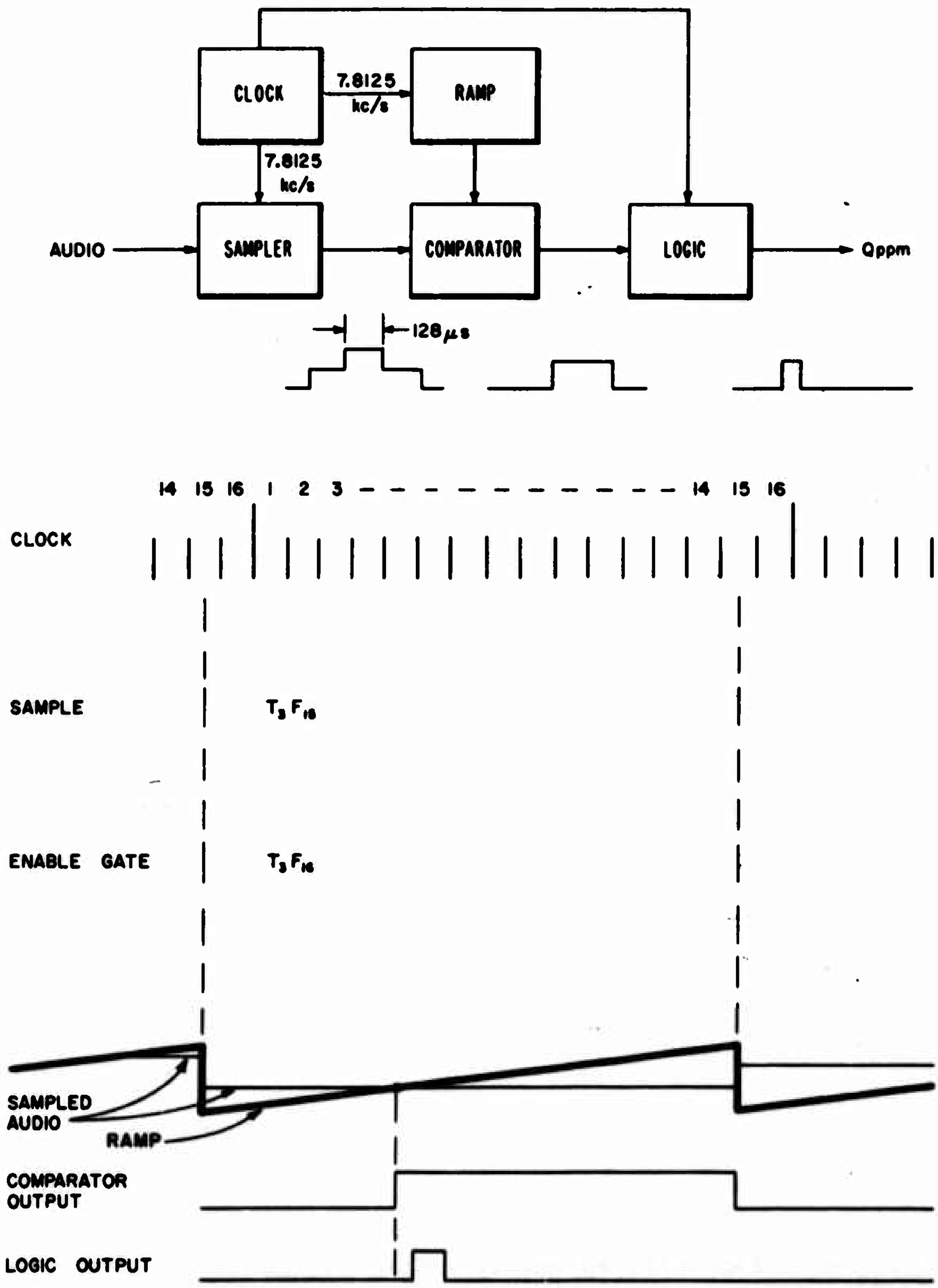


Figure 15. Voice Quantizer Timing Diagram.

Time Slot	1 2 3 4 5 6	
	1 - 2 3 4 -	Noise Channel 1
	1 - - 2 3 4	
	1 4 - - 2 3	
	1 3 4 - - 2	
	2 4 1 3 - -	5
	2 - 4 1 3 -	
	2 - - 4 1 3	
	2 3 - - 4 1	
	2 1 3 - - 4	
	3 1 4 2 - -	10
	3 - 1 4 2 -	
	3 - - 1 4 2	
	3 2 - - 1 4	
	3 4 2 - - 1	
	4 3 1 2 - -	15
	4 - 3 1 2 -	
	4 - - 3 1 2	
	4 2 - - 3 1	
	4 1 2 - - 3	
	- 3 2 1 - 4	20
	- - 4 3 2 1	Voice Channel 2
	- 1 - 4 3 2	3
	- 2 1 - 4 3	4
	- 4 3 2 1 -	1
	1 2 3 4 - -	Sync and Order Wire

Figure 16. Frequency - Time Program

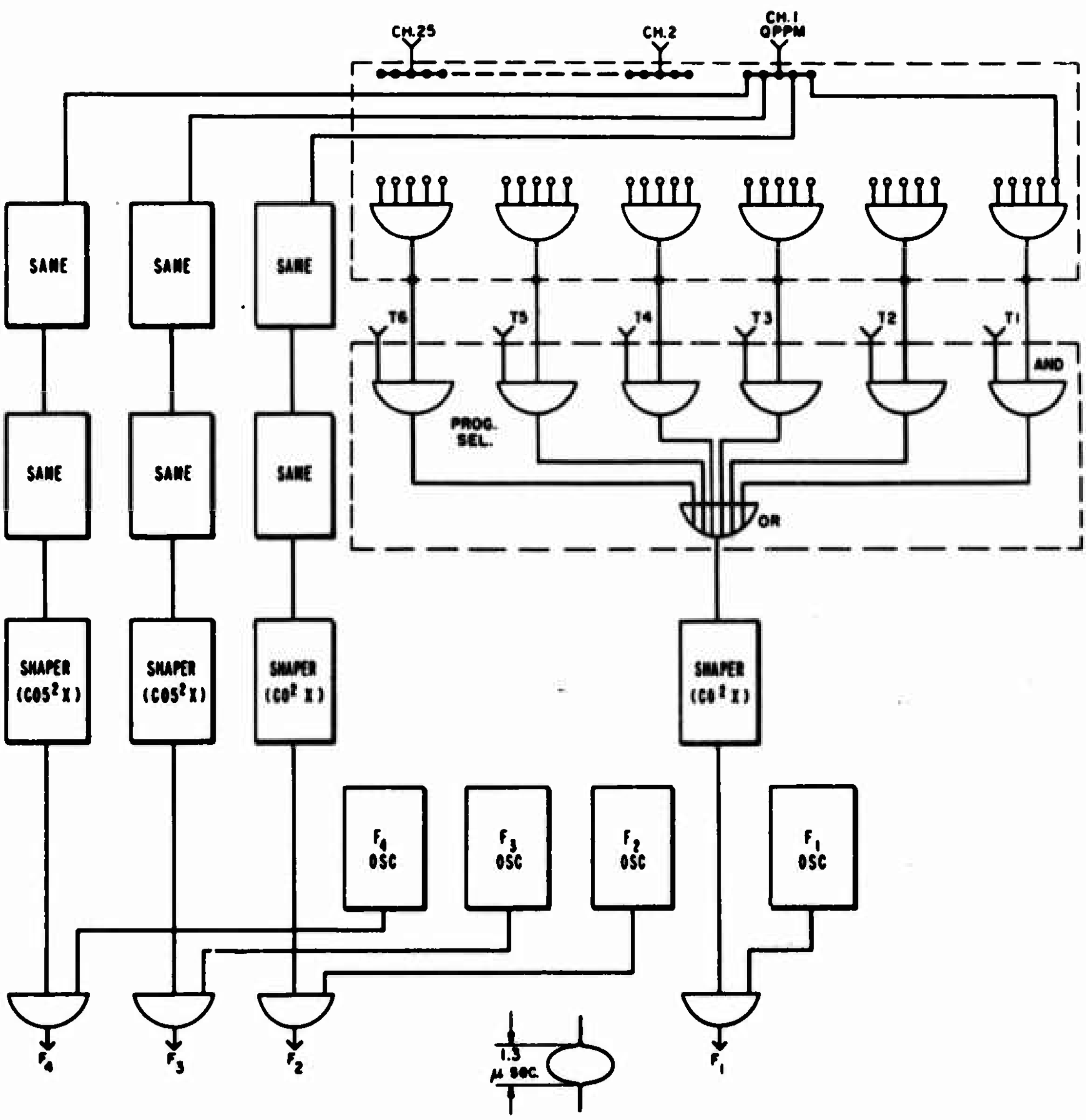


Figure 17. Block diagram - Match panel and program selector.

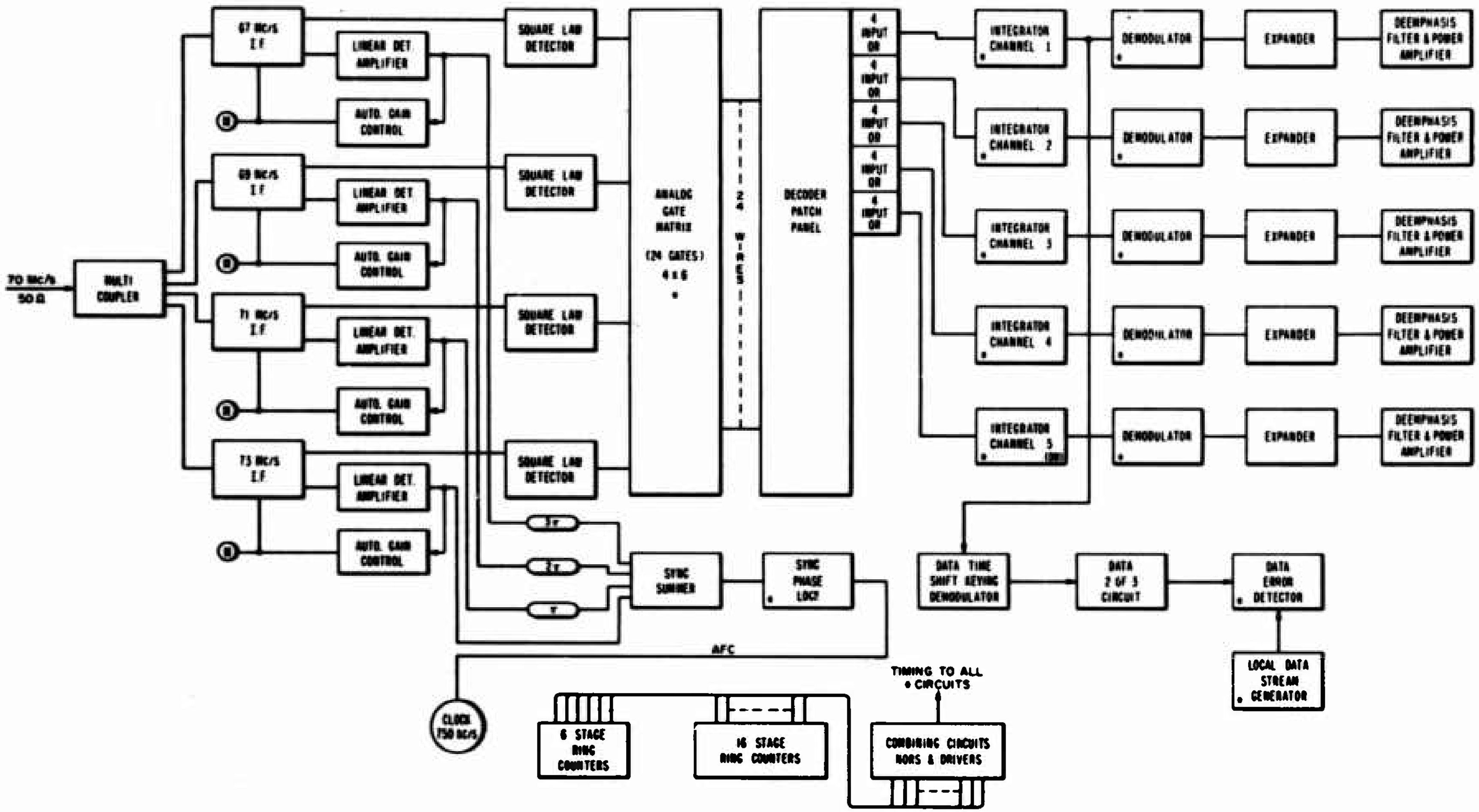


Figure 18. Block Diagram - PPM Decoder.

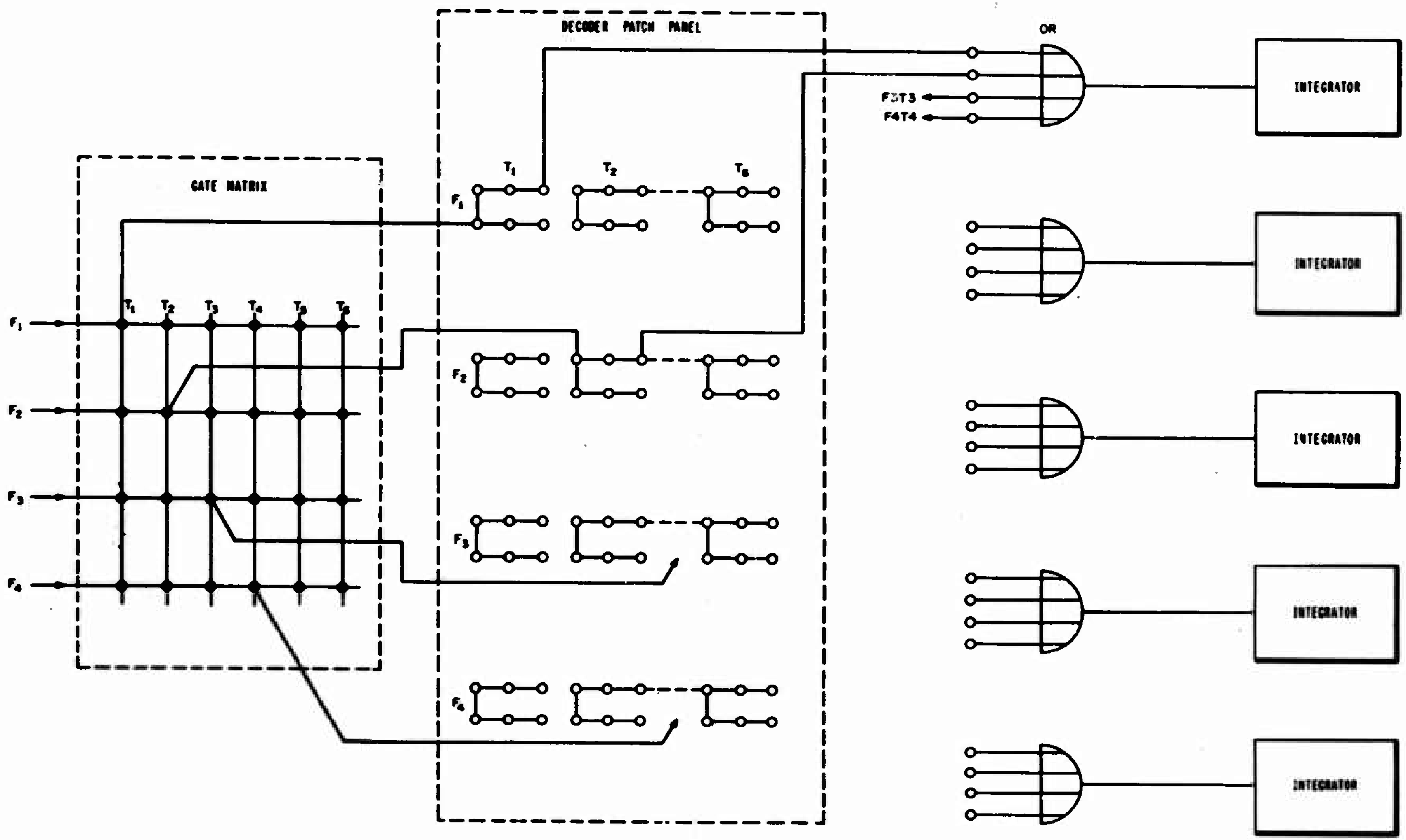
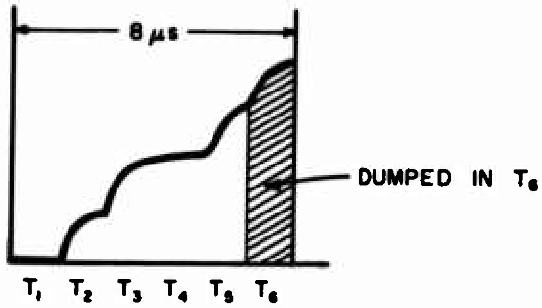


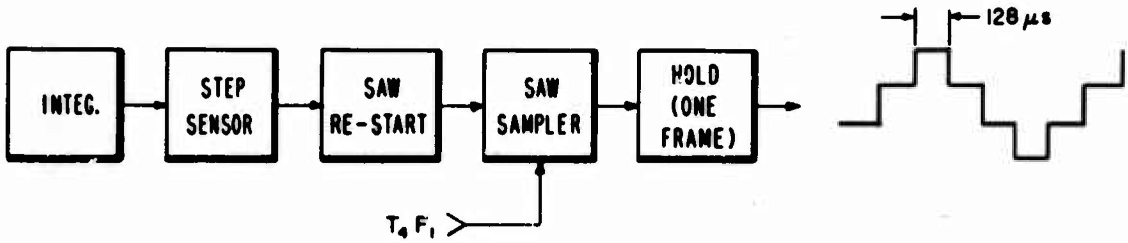
Figure 19. Block Diagram - Gate Matrix and Decoder patch panel.

INTEGRATOR

INTEGRATES OVER ONE FRAME (8 μs). THE OUTPUT OF THE INTEGRATOR IS DUMPED AT THE END OF T_6 IN EACH FRAME.



DEMODULATOR



SAW

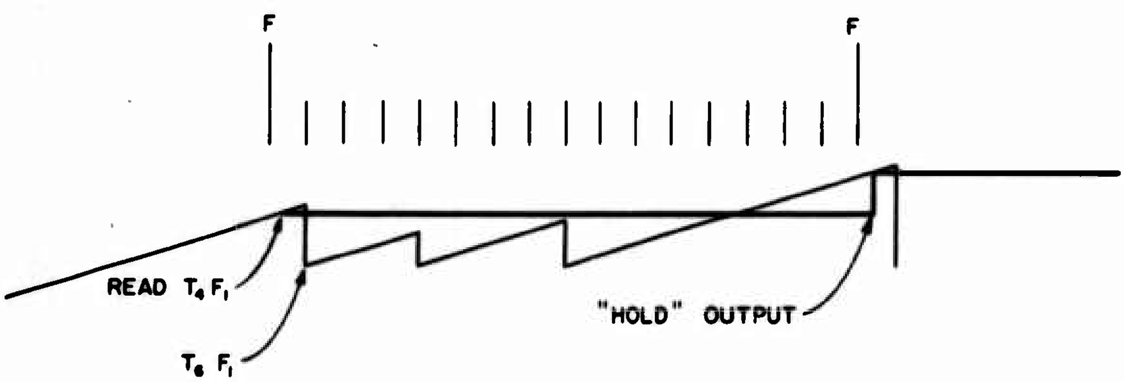


Figure 20. Integrator and Demodulator diagram

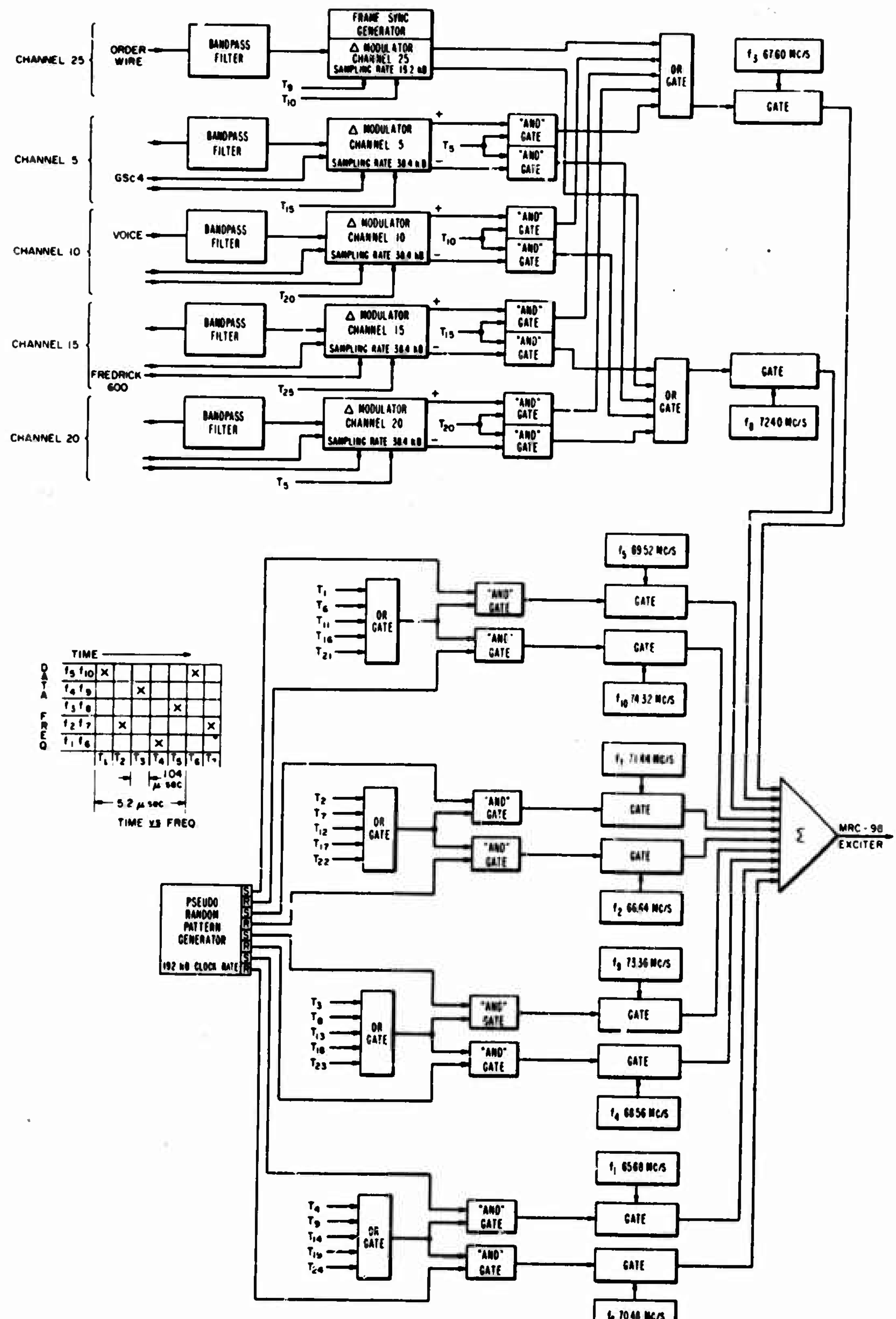


Figure 21. . Block Diagram - Motorola Δ modulator TDM/FDM Multiplexer transmit terminal.

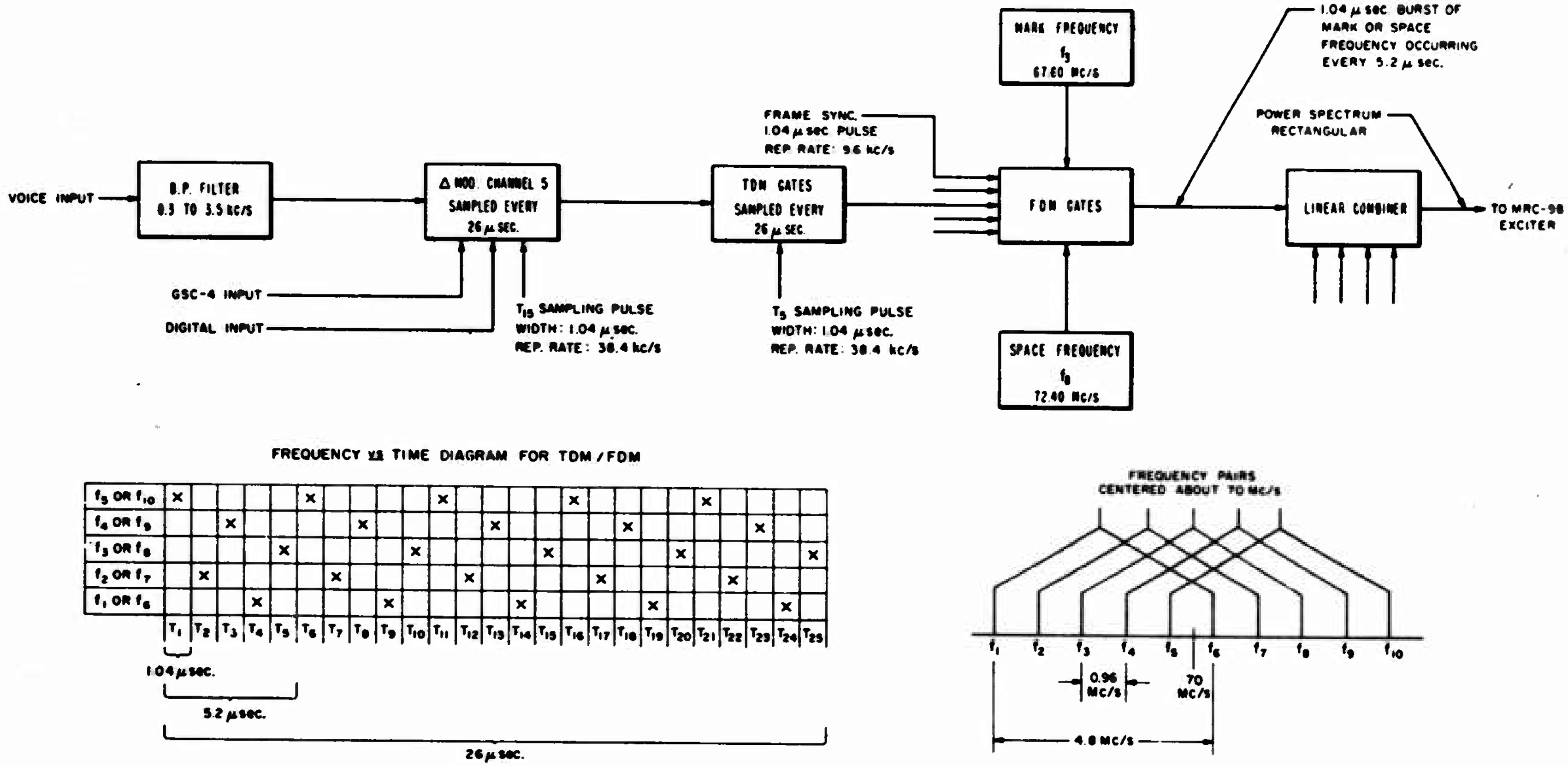


Figure 22. Block Diagram - Single channel Motorola Δ modulator TDM/FDM multiplexer transmit terminal.

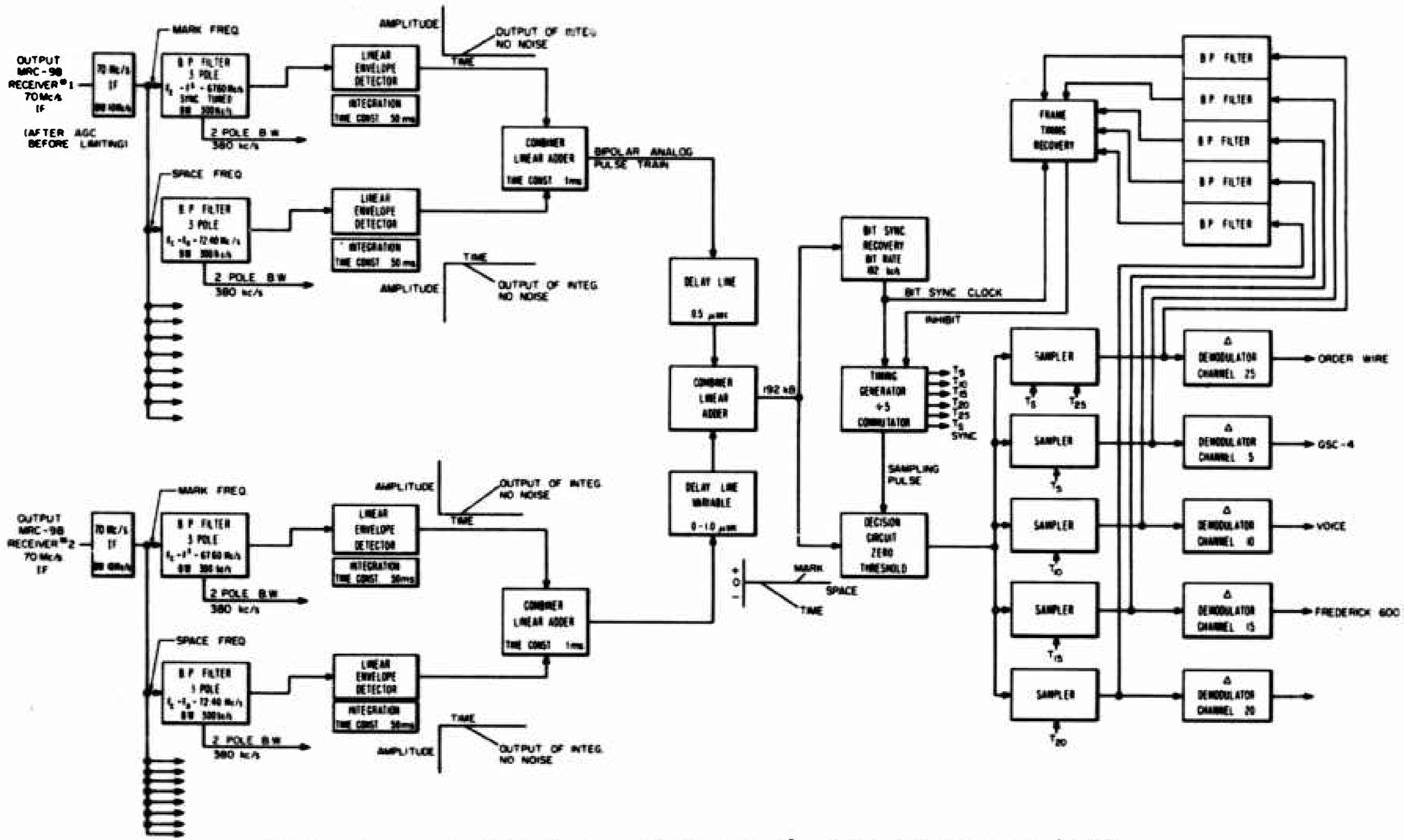


Figure 23. Block Diagram - Motorola Δ demodulator TDM/FDM demultiplexer receive terminal.

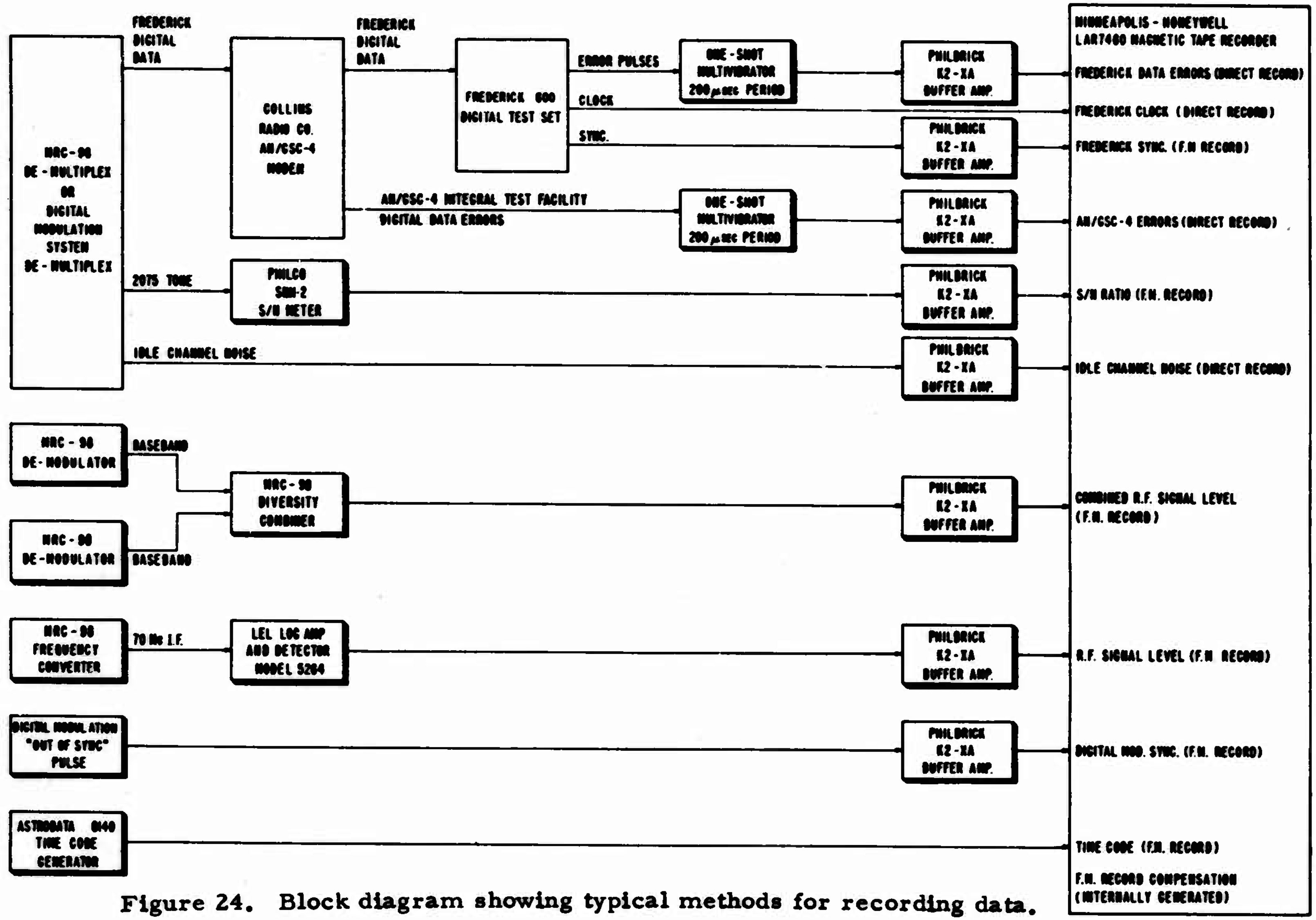


Figure 24. Block diagram showing typical methods for recording data.

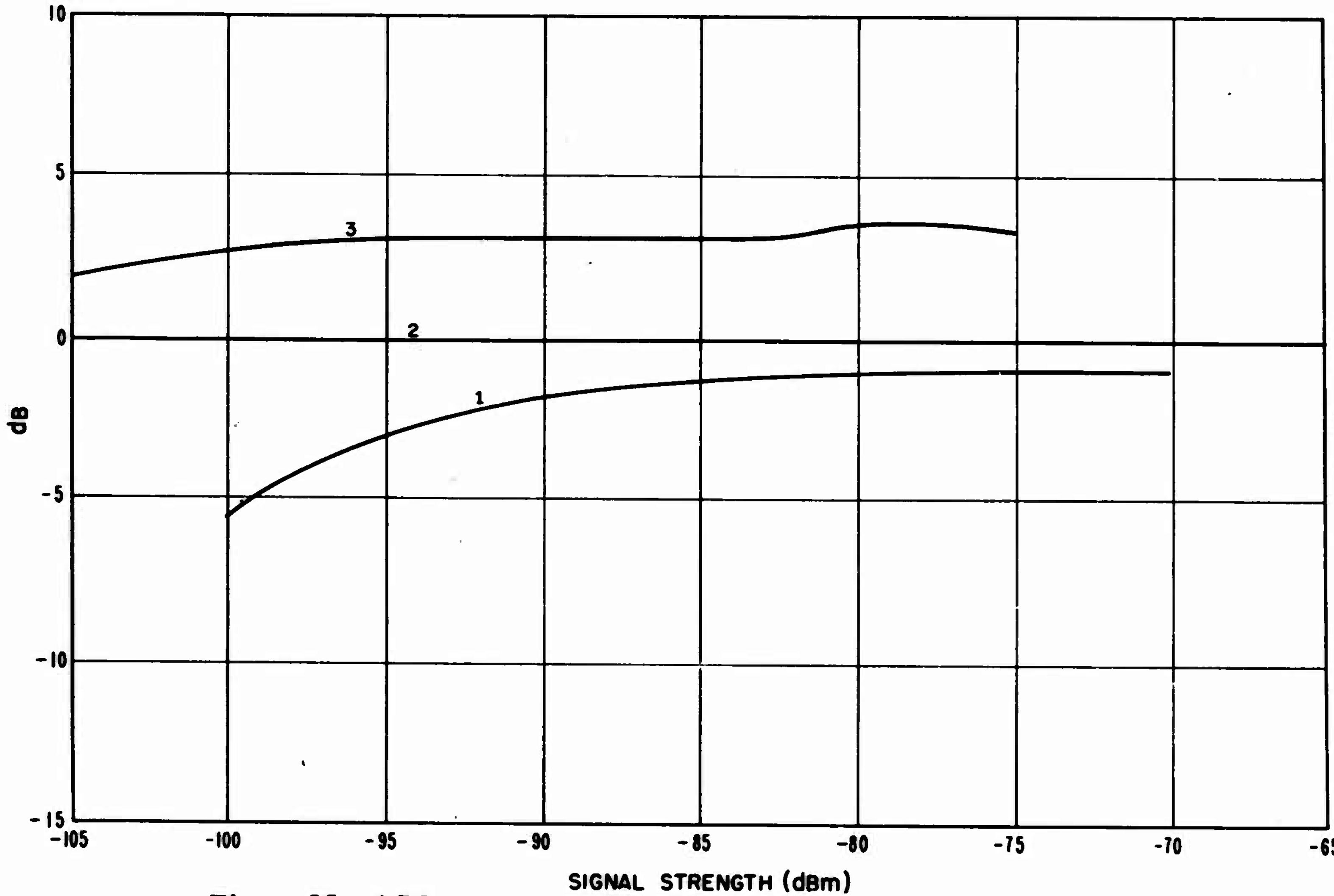


Figure 25. AGC correction curves for various methods of calibration.

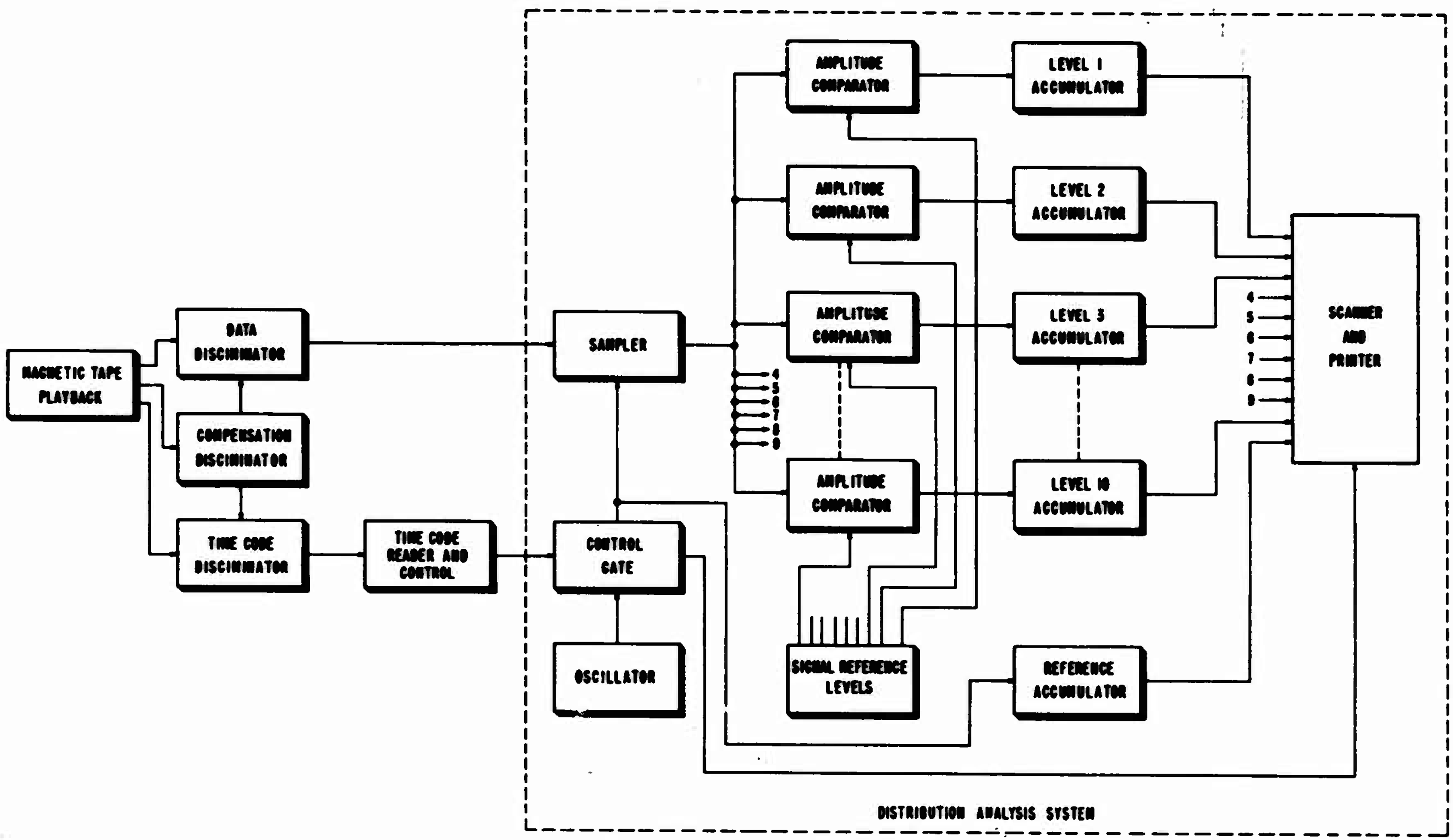


Figure 26. The system for obtaining the cumulative amplitude distribution and a detailed block diagram of the Distribution Analysis System.

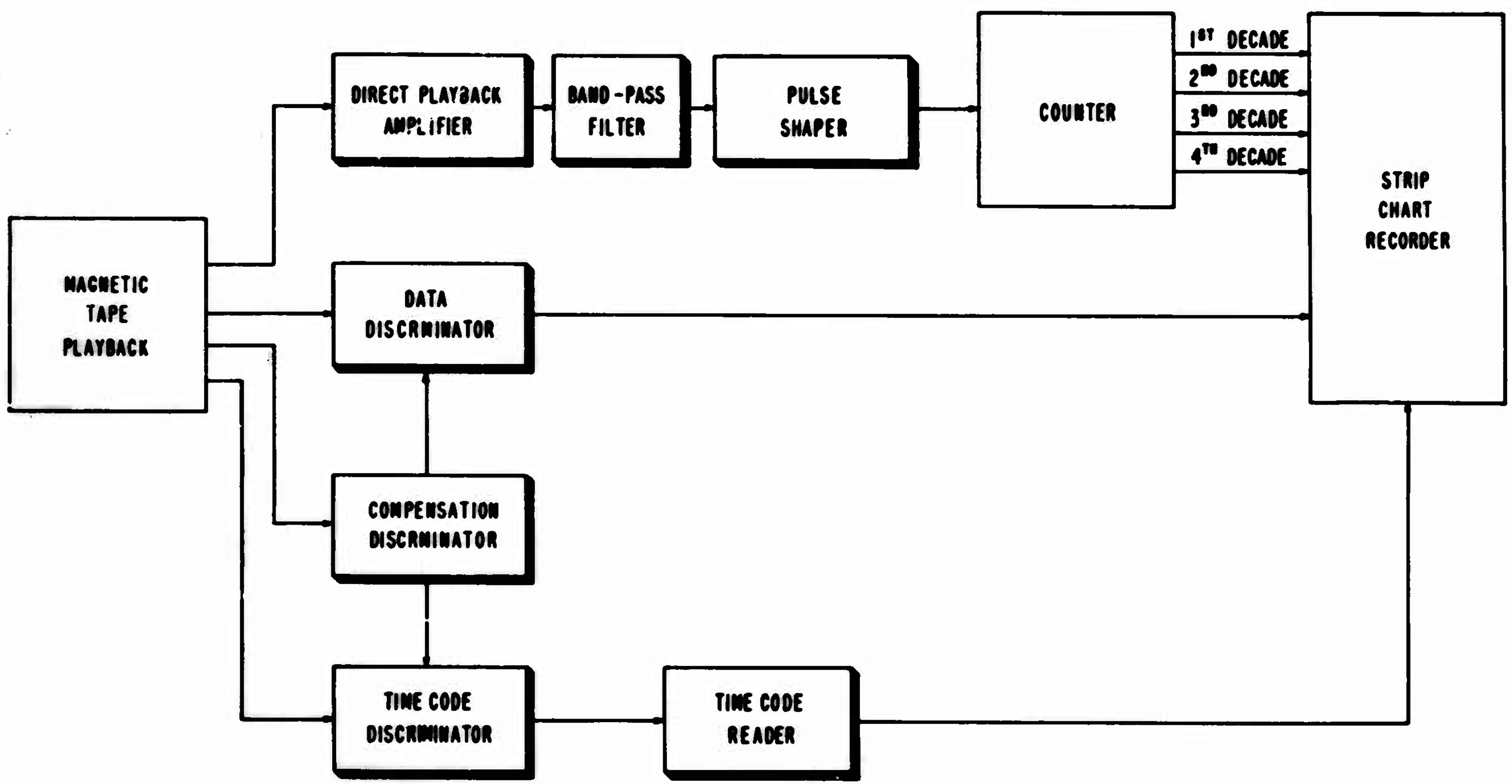


Figure 27. The system for counting digital data errors.

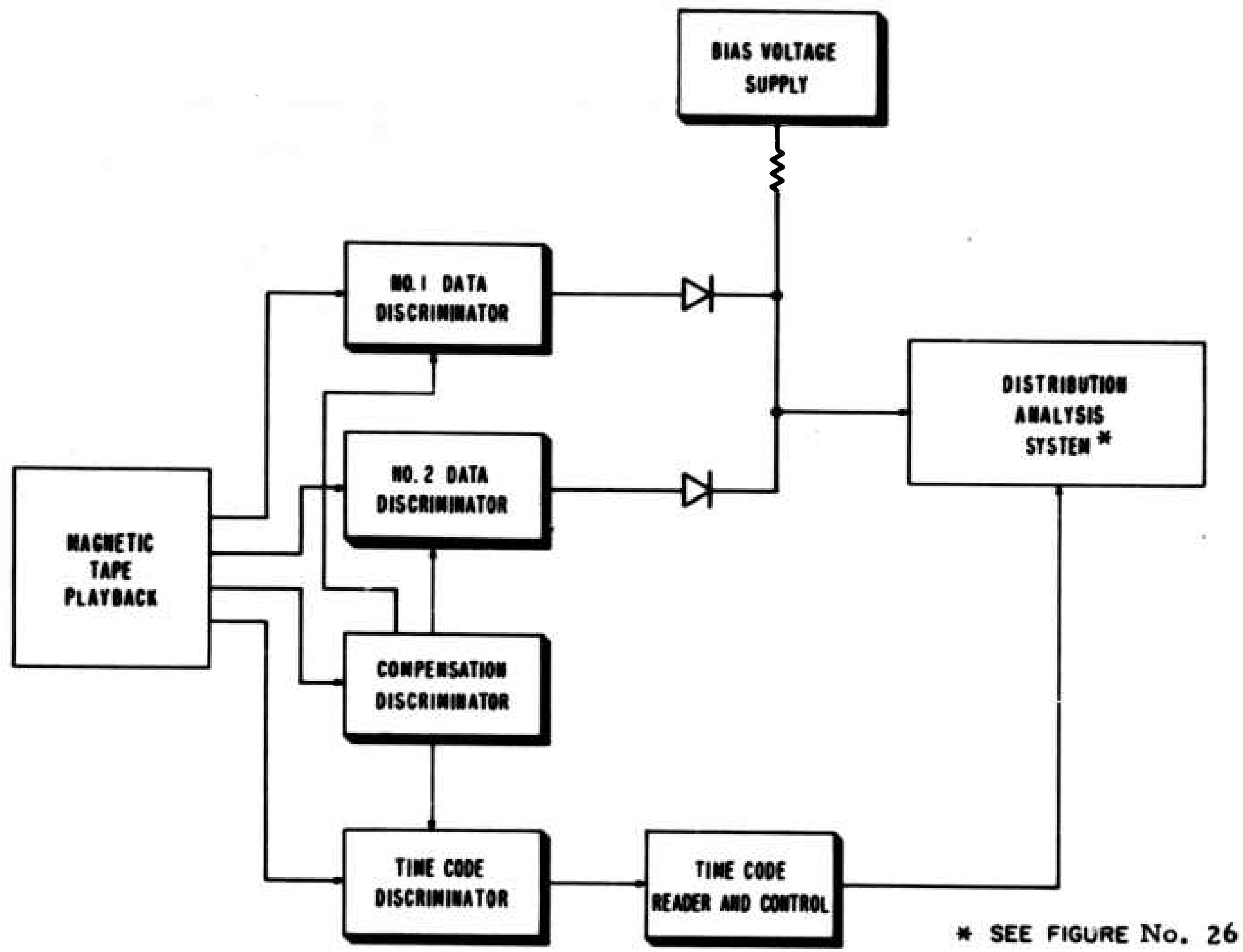


Figure 28. The system used to determine the cumulative amplitude distribution of two "combined" received signal strengths.

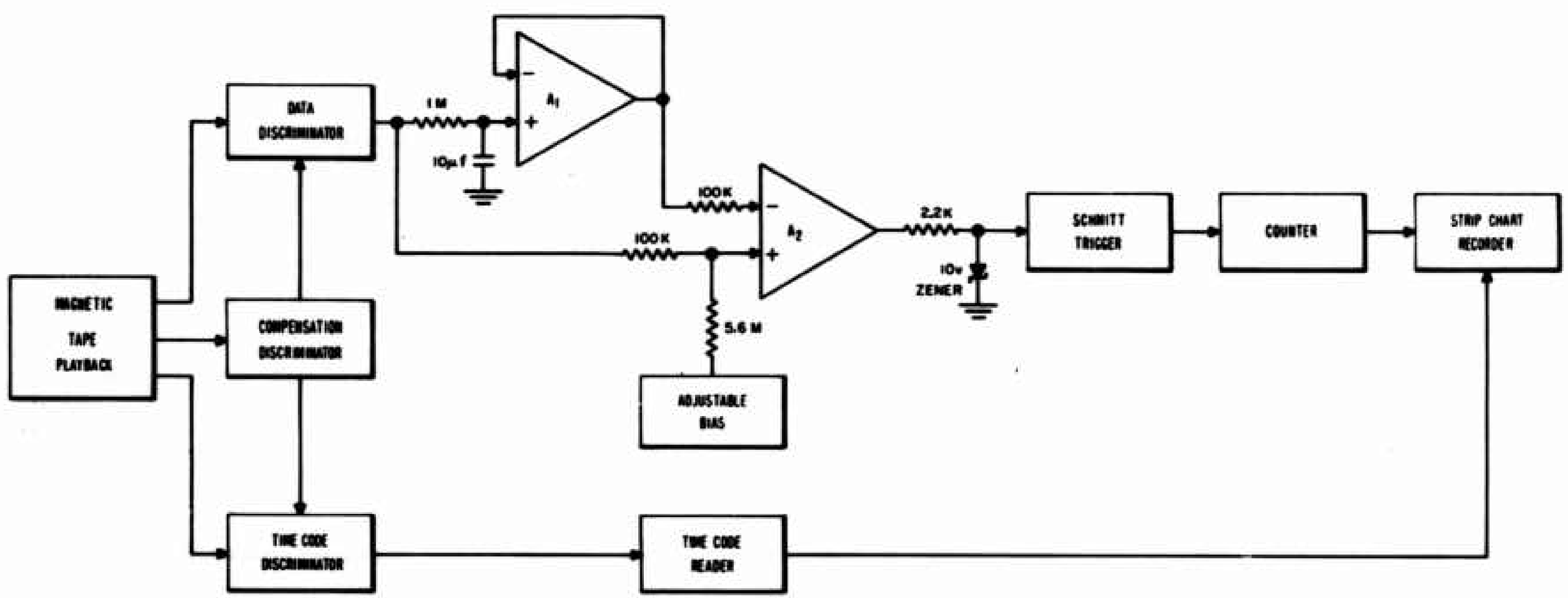


Figure 29. Circuit diagram for median crossings.

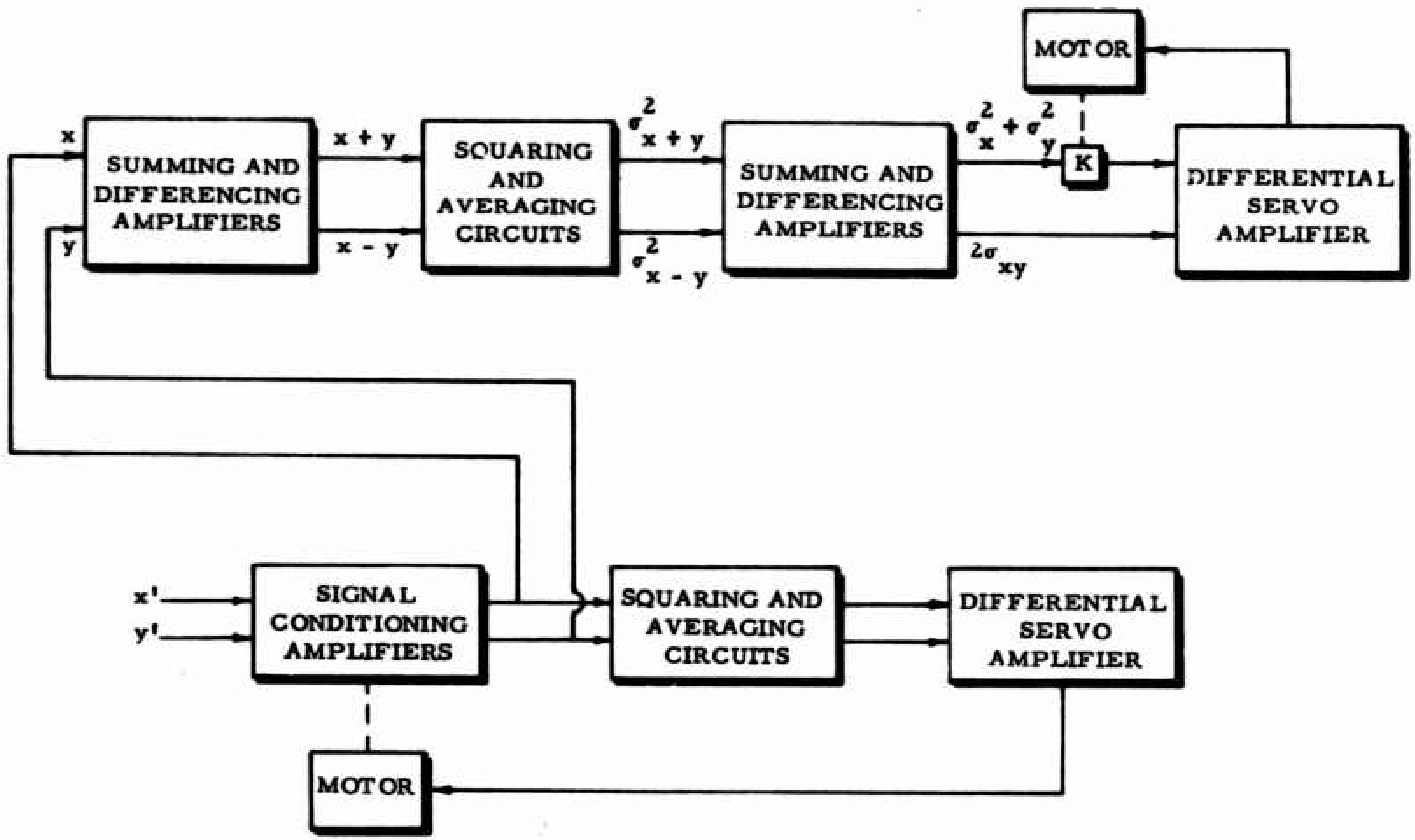
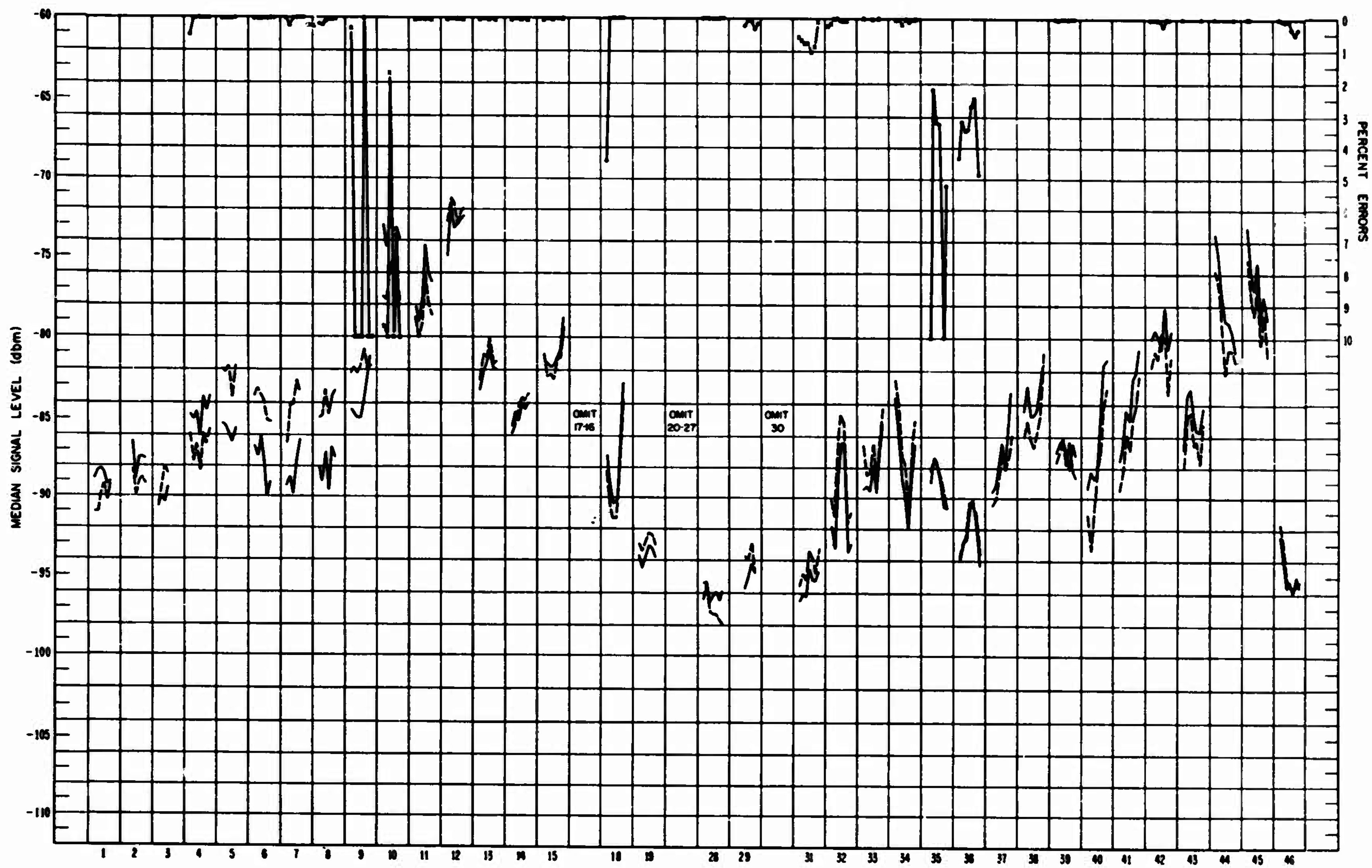
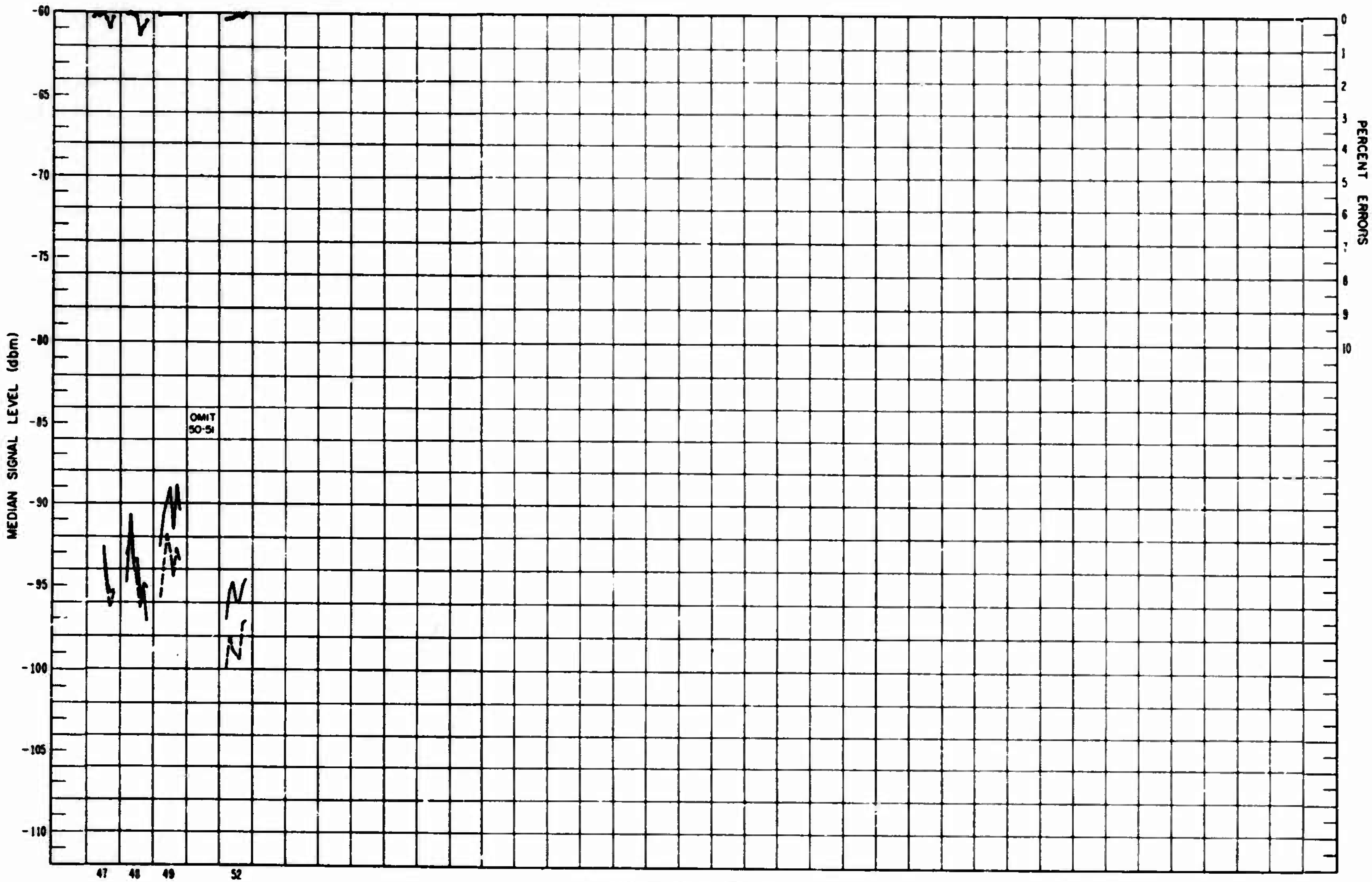


Figure 30. The analog correlation computer used to compute the cross correlation of two parameters.



Run Numbers

Figure 31. Medians and error rates for the FDM system.



Run Numbers

Figure 32. Medians and error rates for the FDM system.

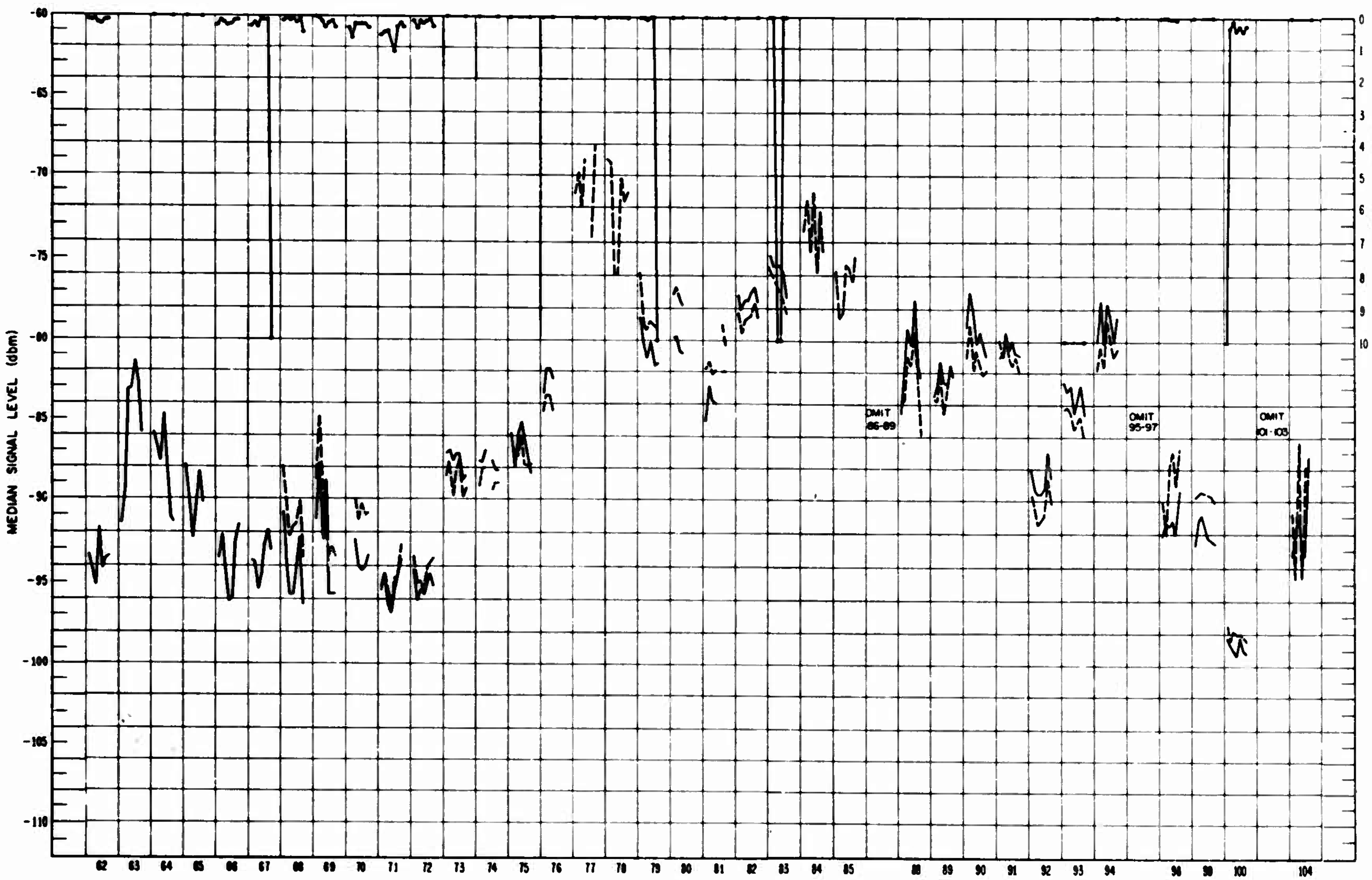
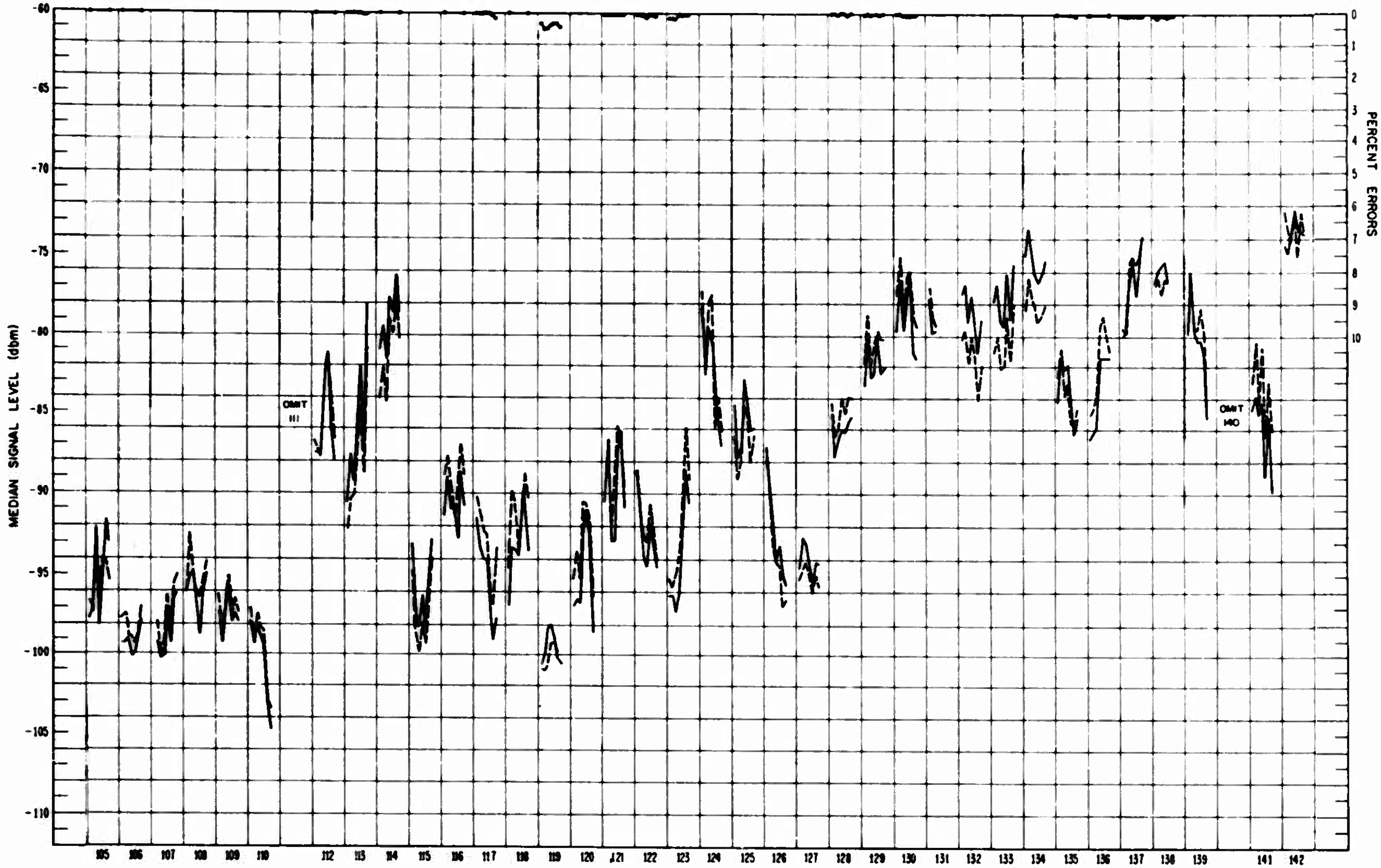


Figure 33. Medians and error rates for the FDM system.



Run Numbers

Figure 34. Medians and error rates for the FDM system.

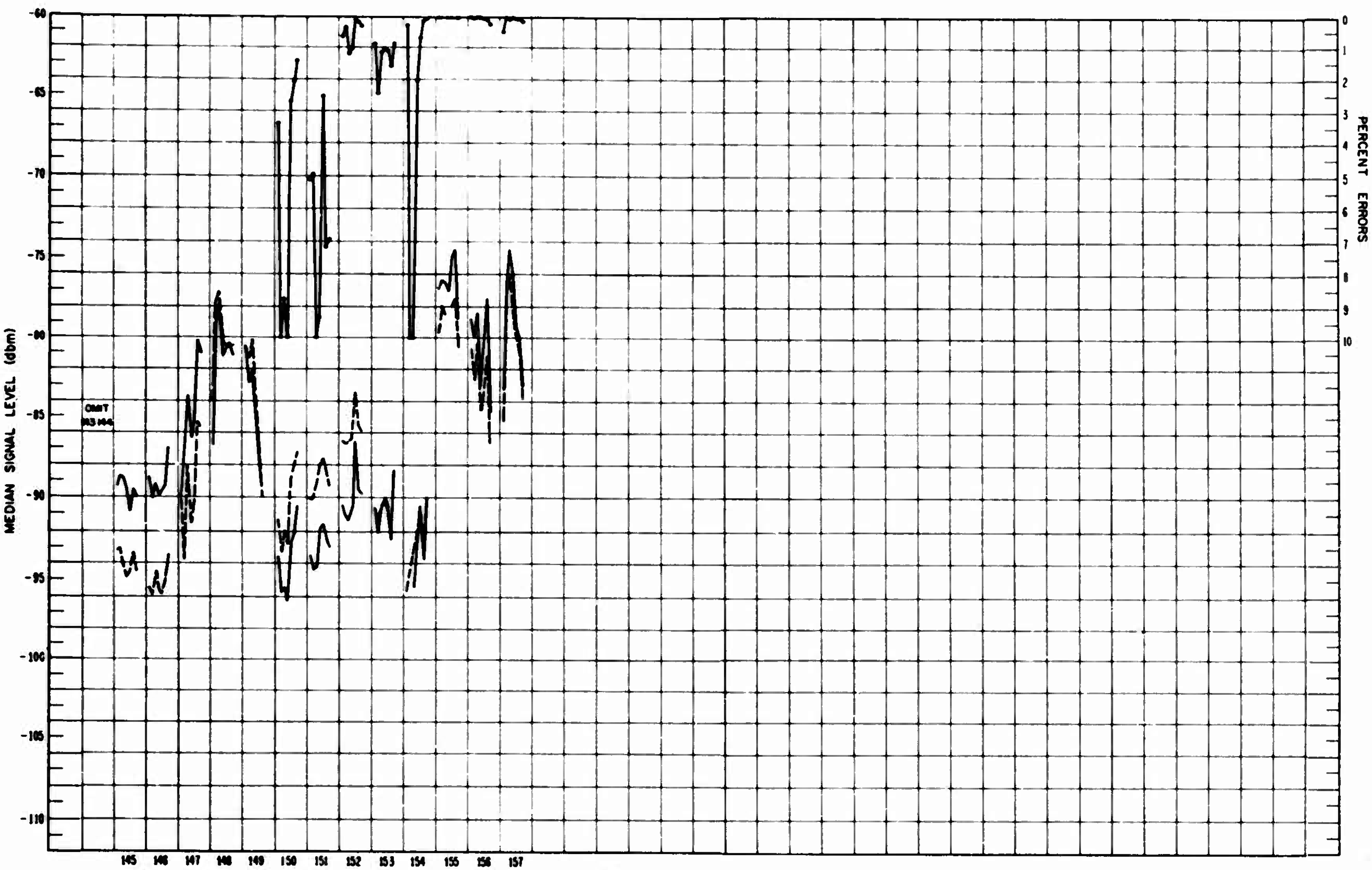


Figure 35. Medians and error rates for the FDM system.

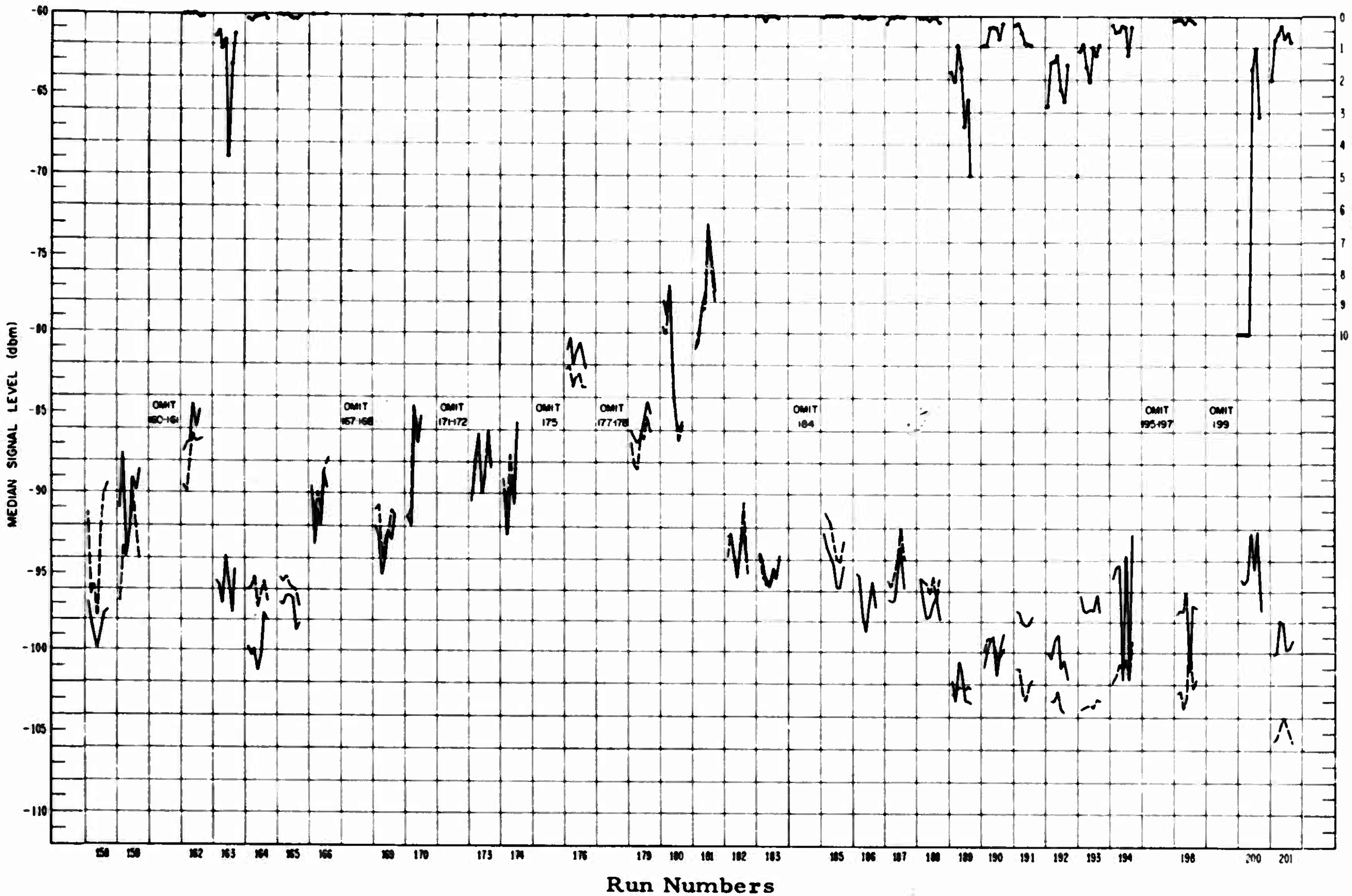


Figure 36. Medians and error rates for the FDM system.

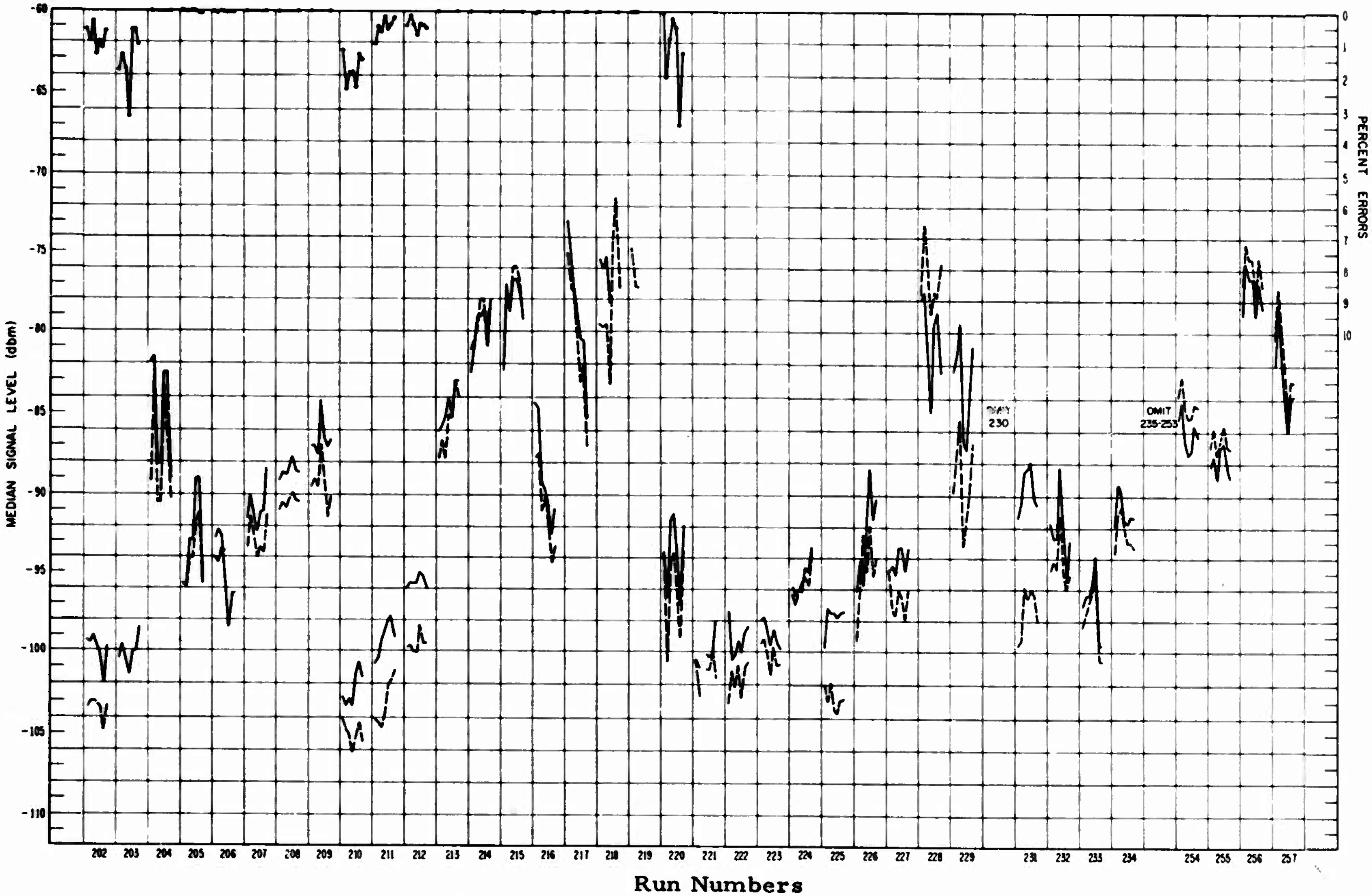


Figure 37. Medians and error rates for the FDM system.

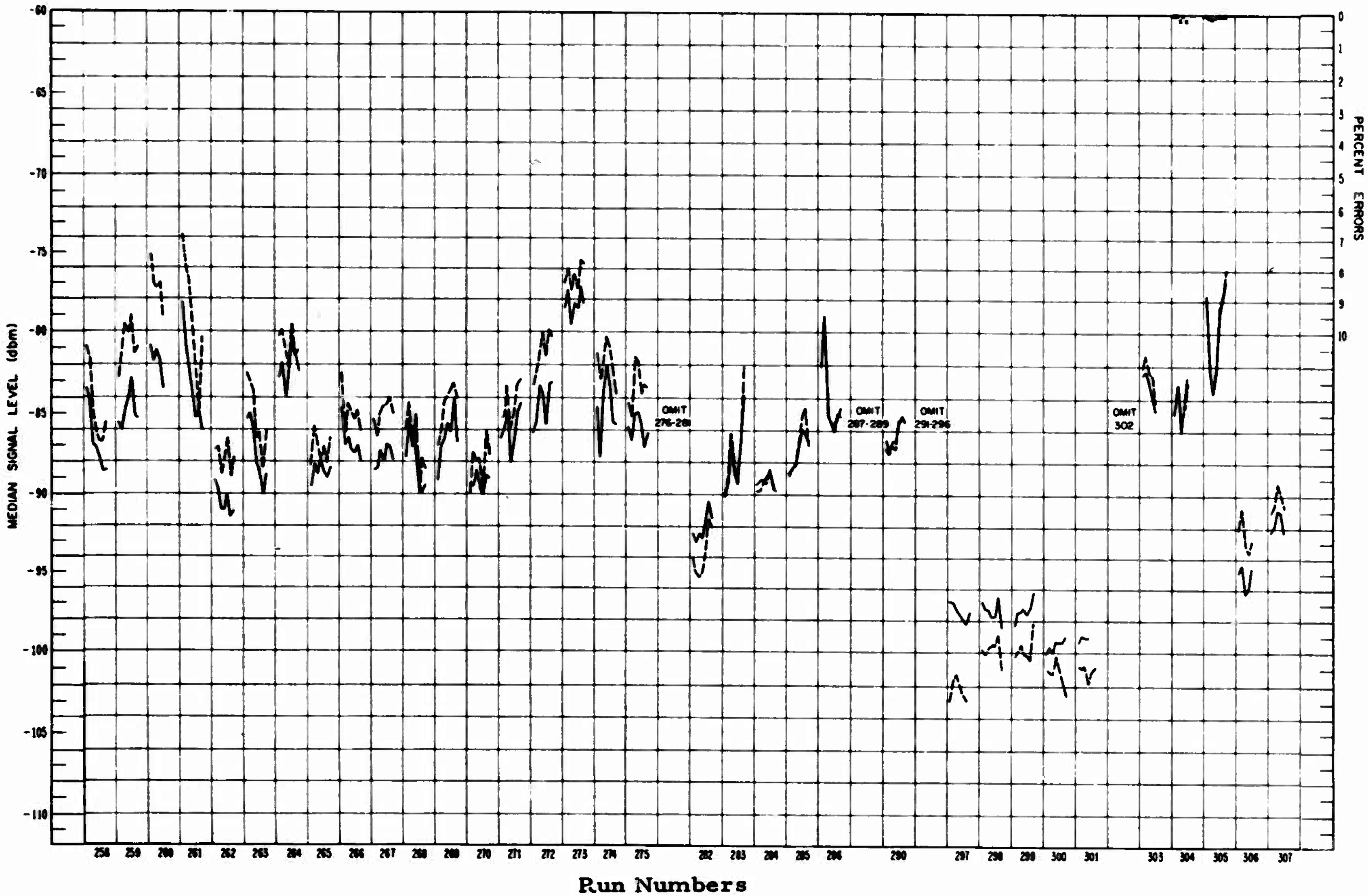


Figure 38. Medians and error rates for the FDM system.

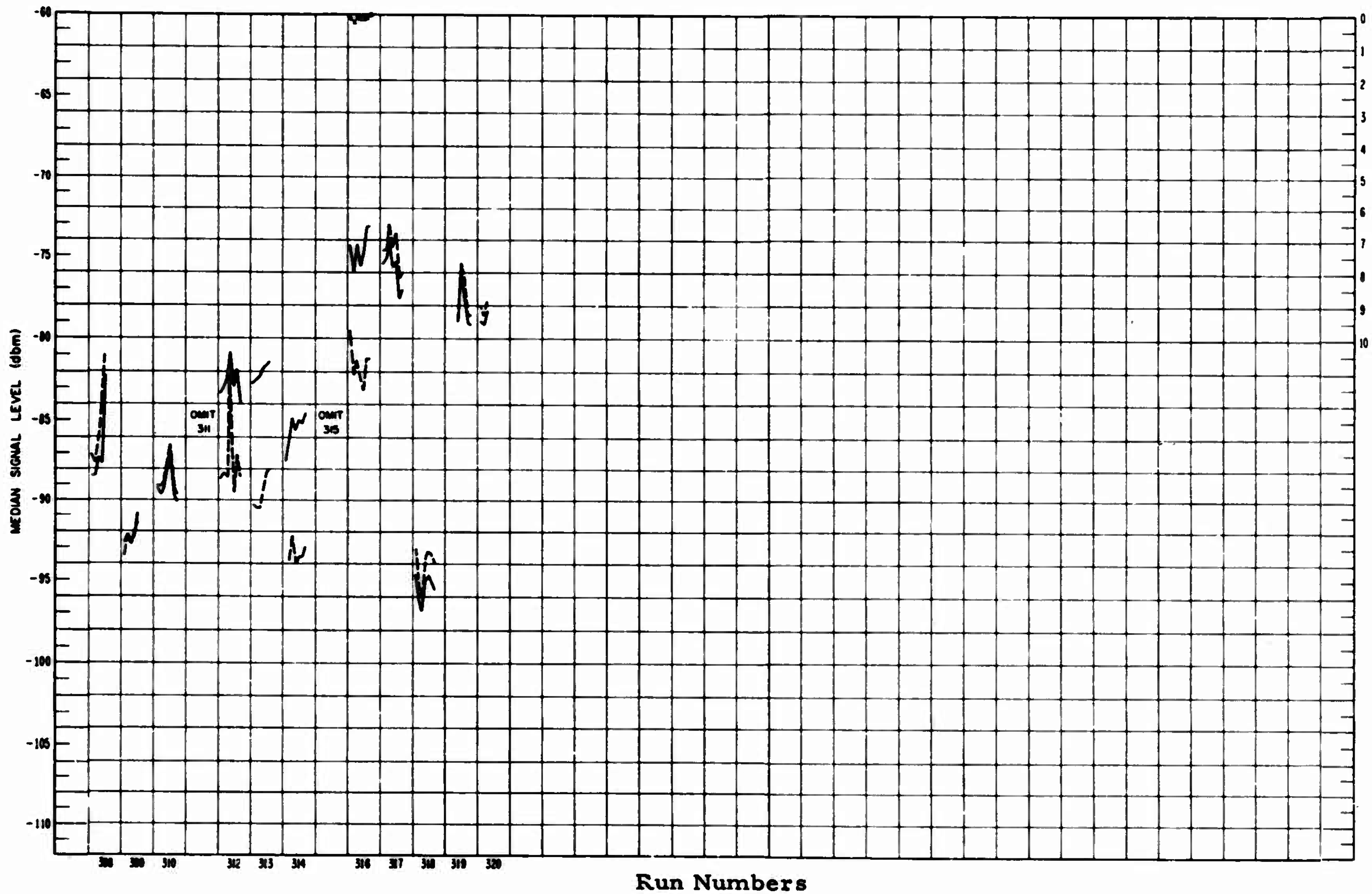


Figure 39. Medians and error rates for the FDM system.

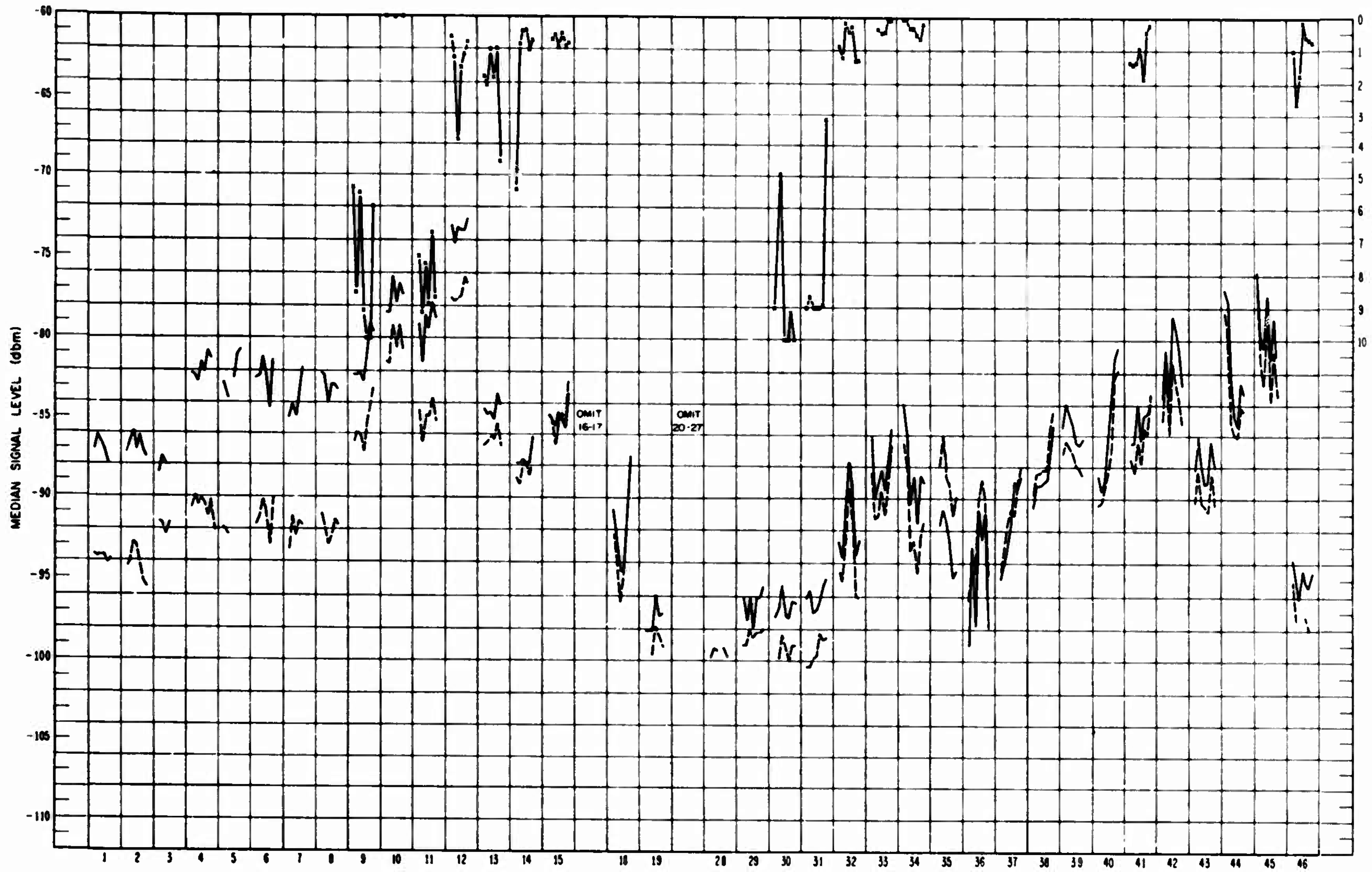


Figure 40. Medians and Frederick error rates for the PCM system.

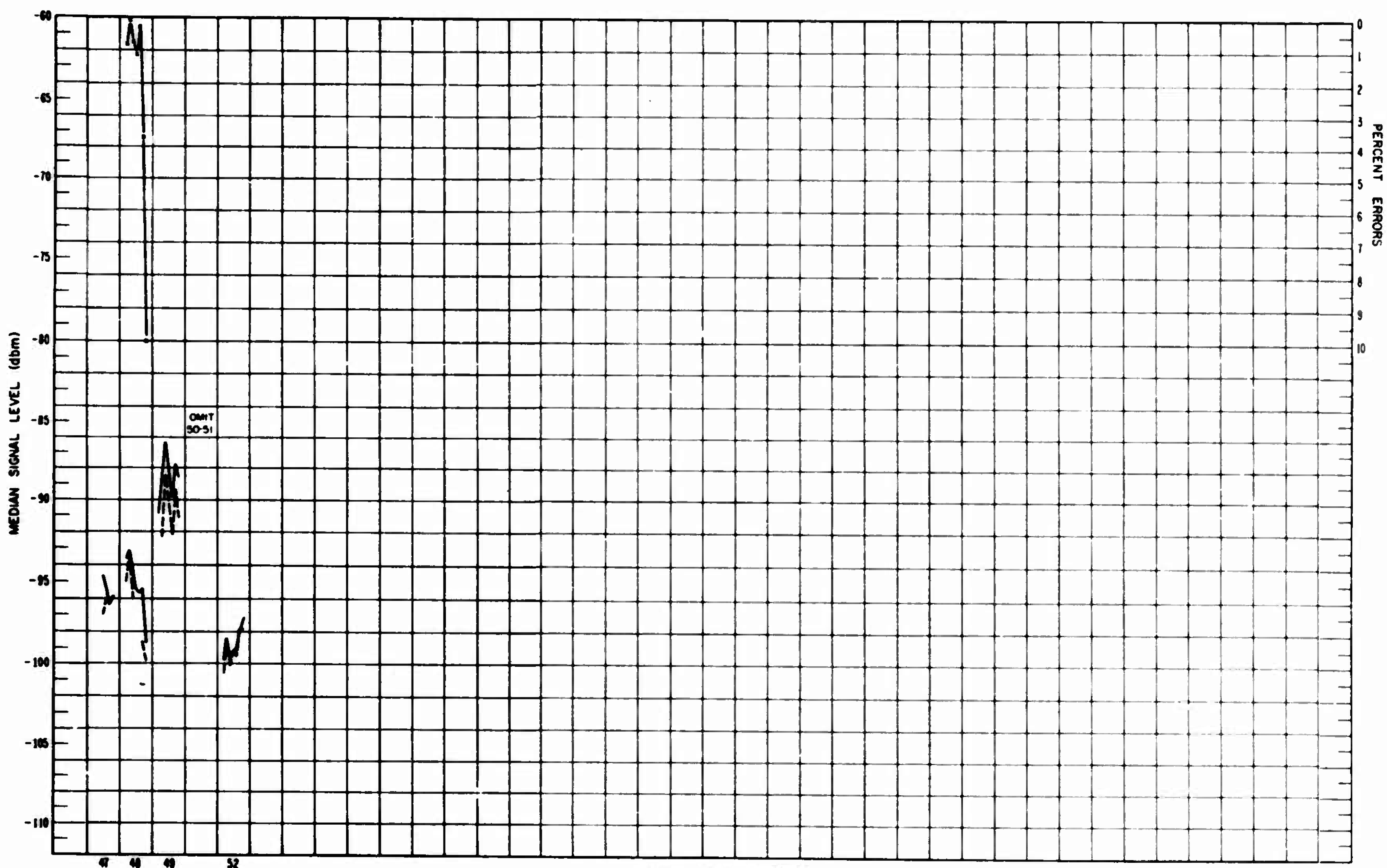


Figure 41. Medians and Frederick error rates for the PCM system.

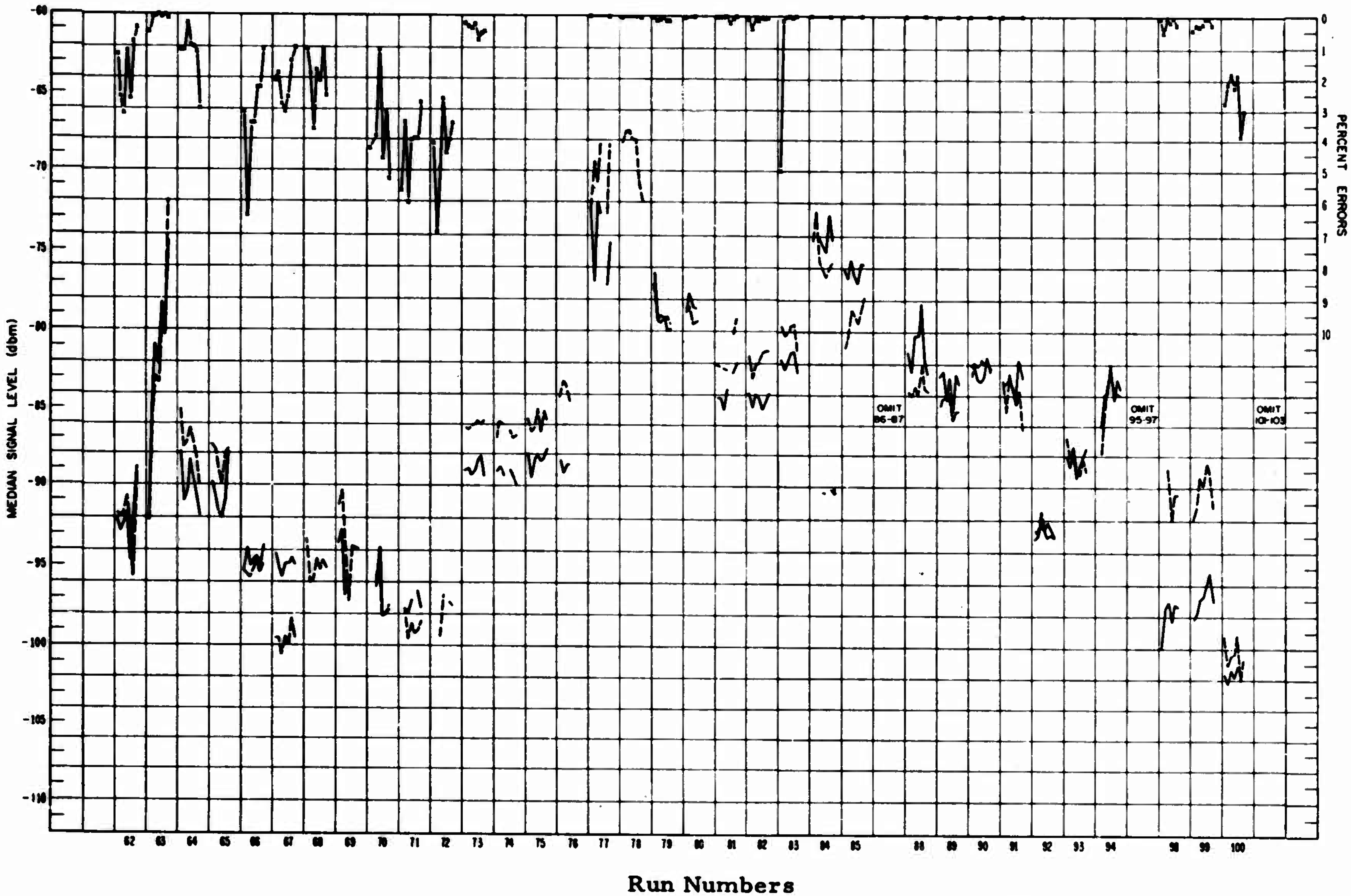


FIGURE 42. Medians and Frederick error rates for the PPM system.

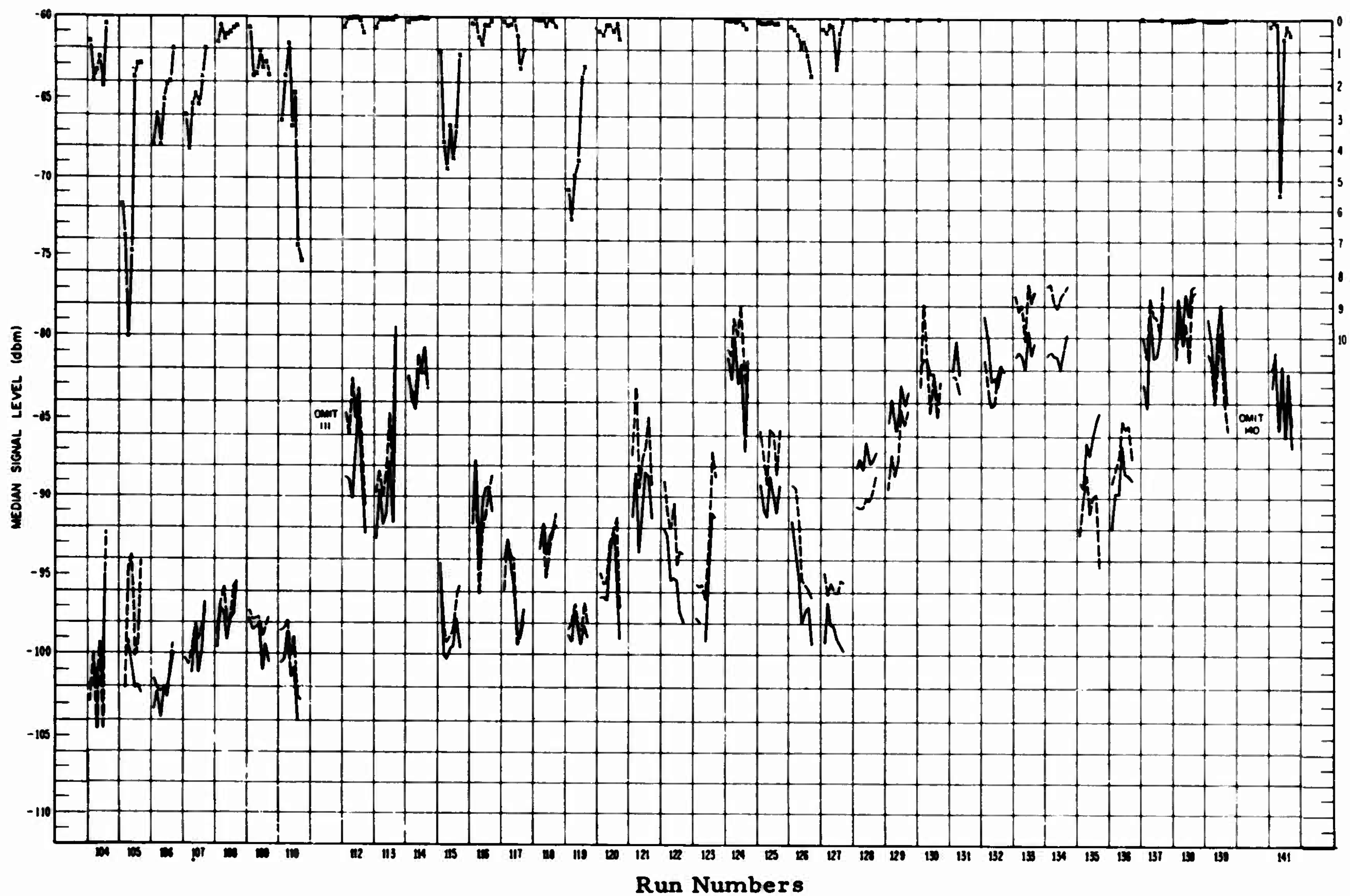


FIGURE 43. Medians and Frederick error rates for the PPM system.

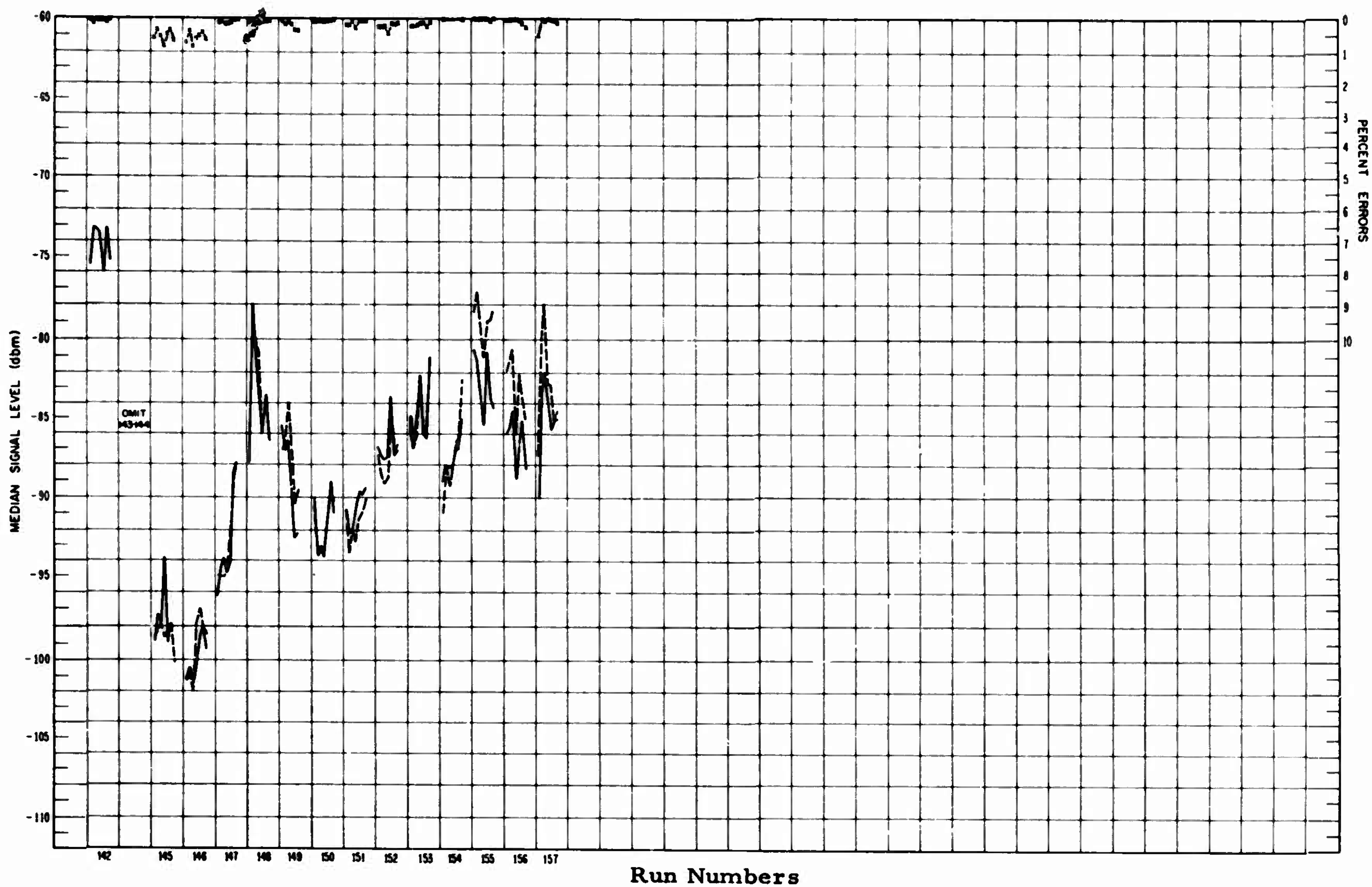


FIGURE 44. Medians and Frederick error rates for the PPM system.

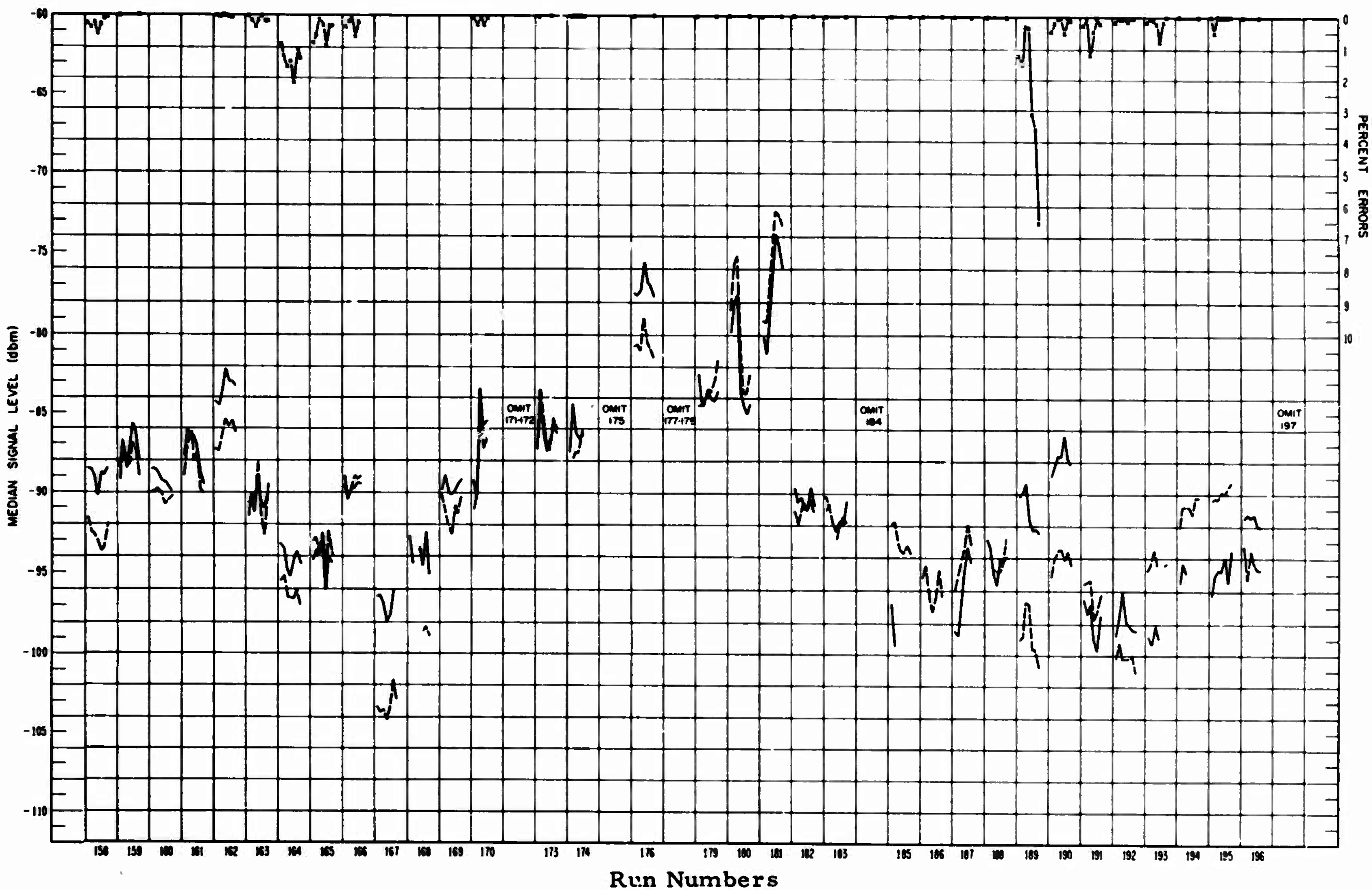


FIGURE 45. Medians and Frederick error rates for the Δ Mod system

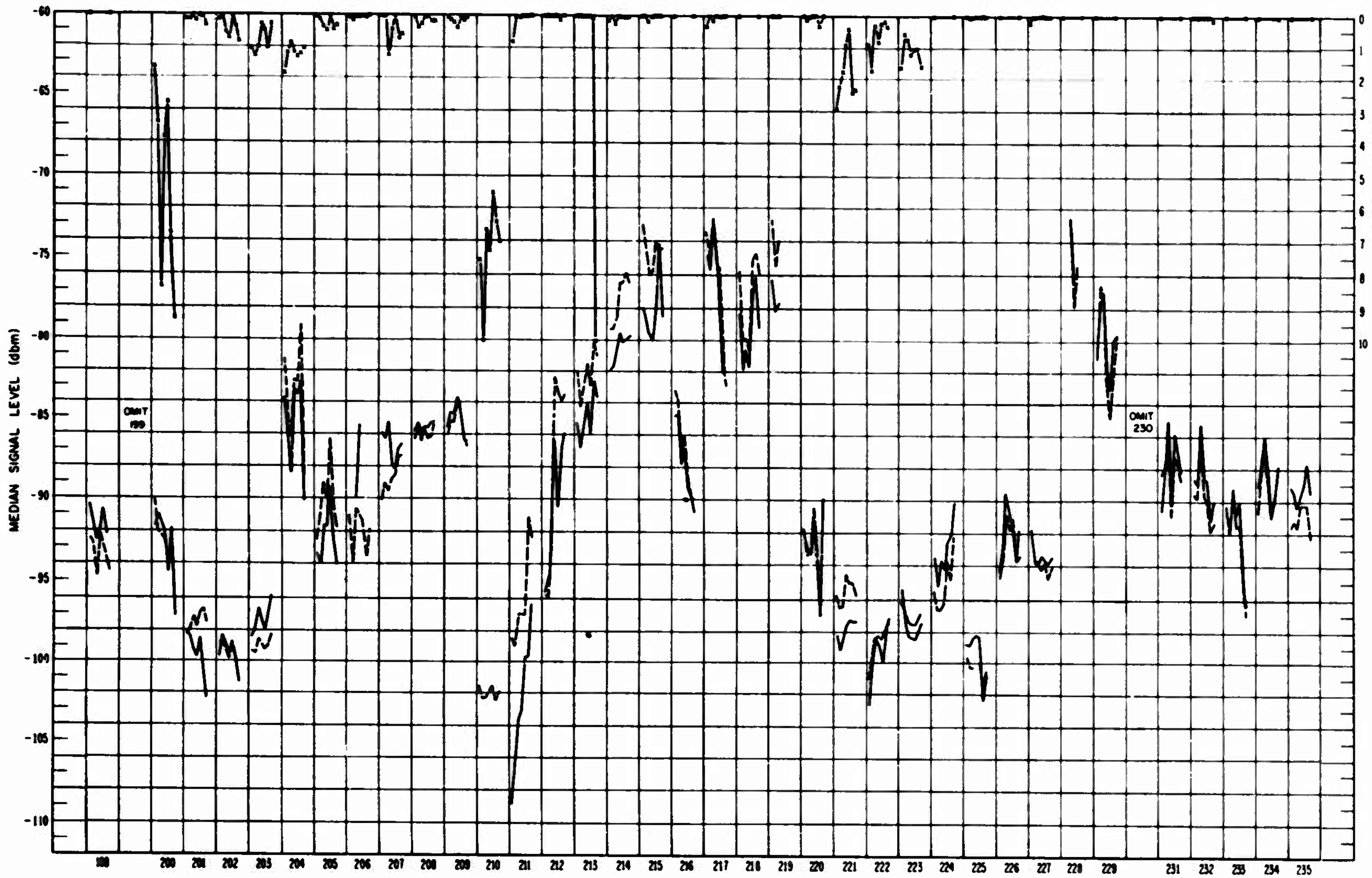


FIGURE 46. Medians and Frederick error rates for the Δ Mod system.

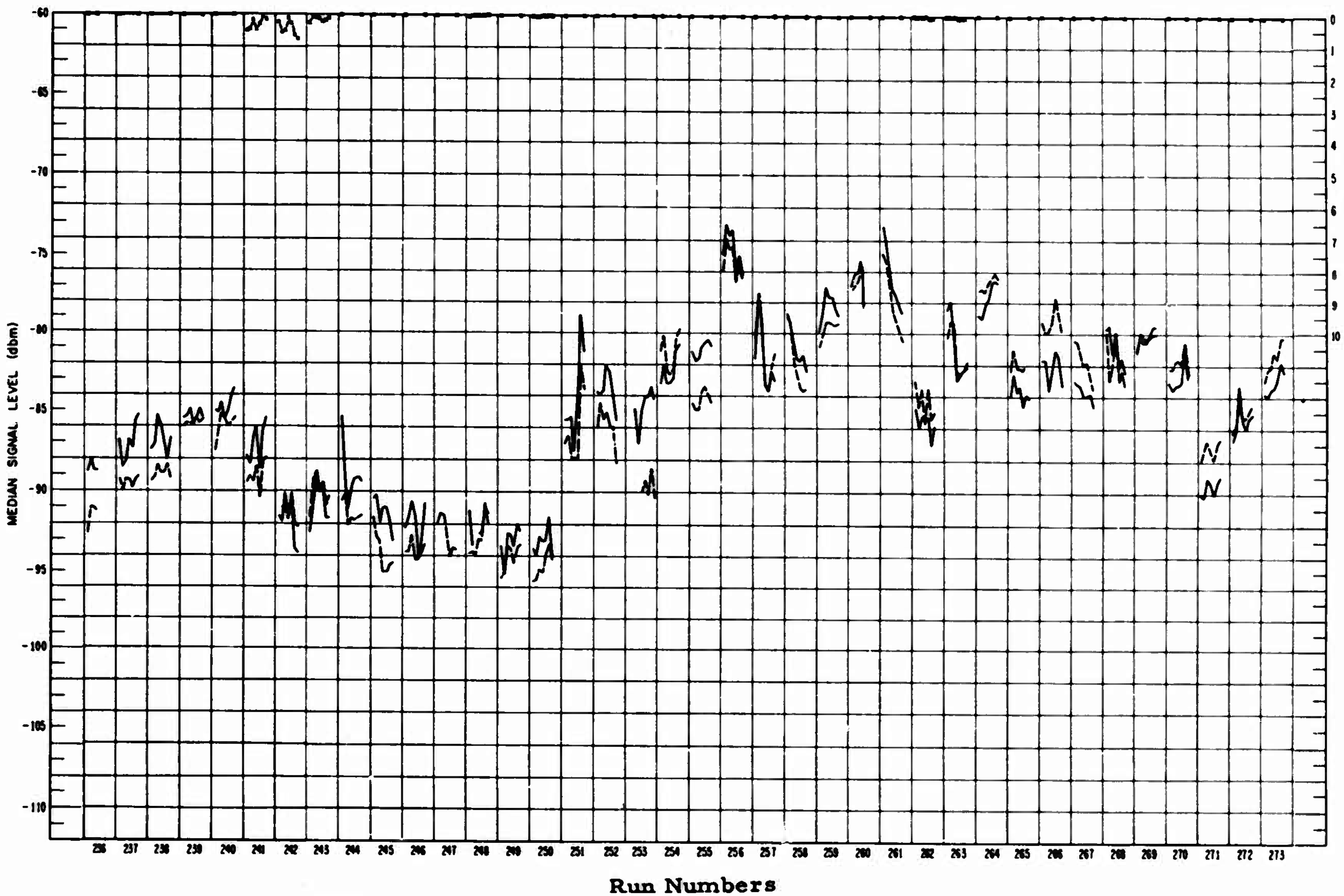


FIGURE 47. Medians and Frederick error rates for the Δ Mod system

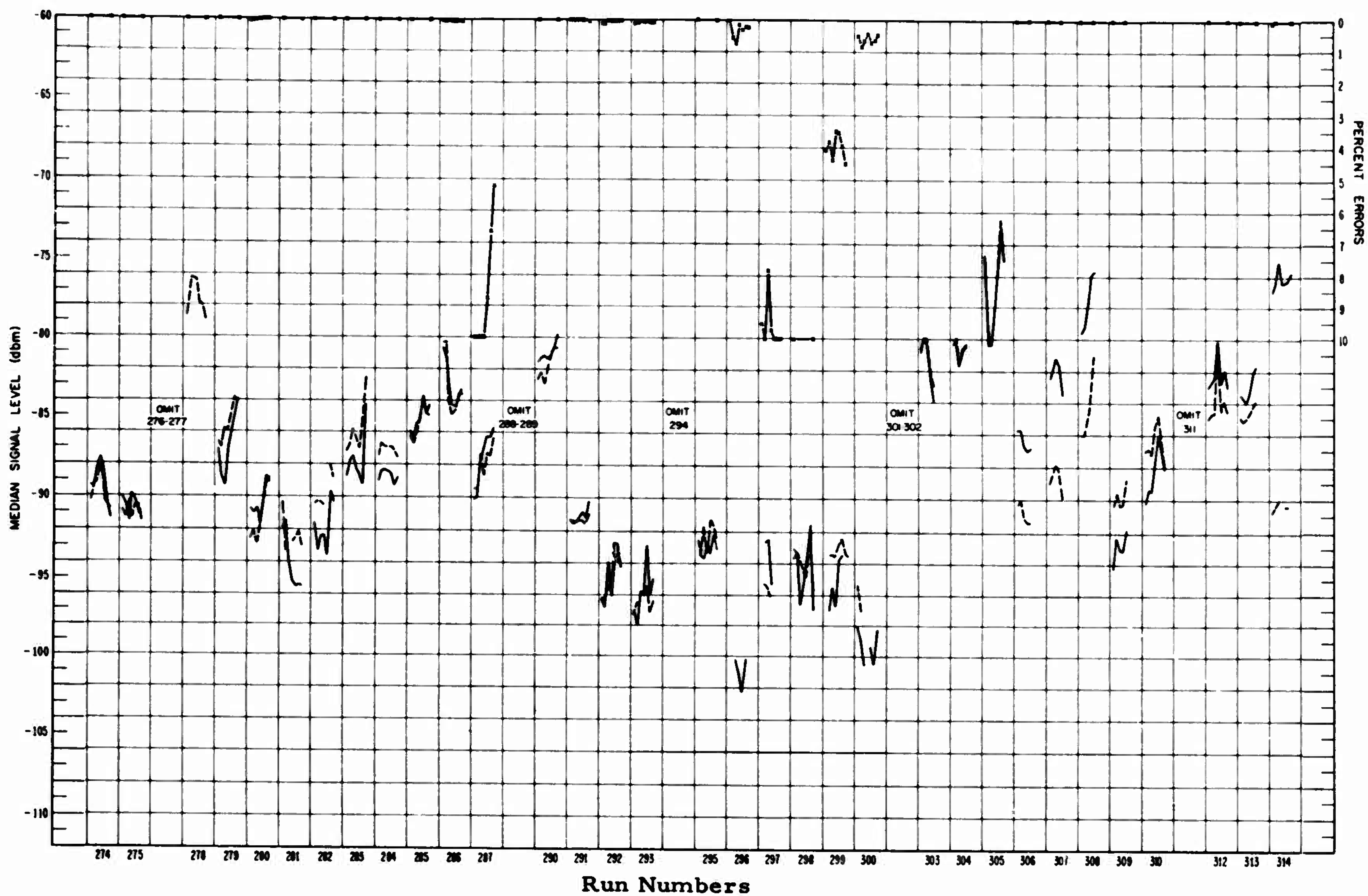


FIGURE 48. Medians and Frederick error rates for the Δ Mod system.

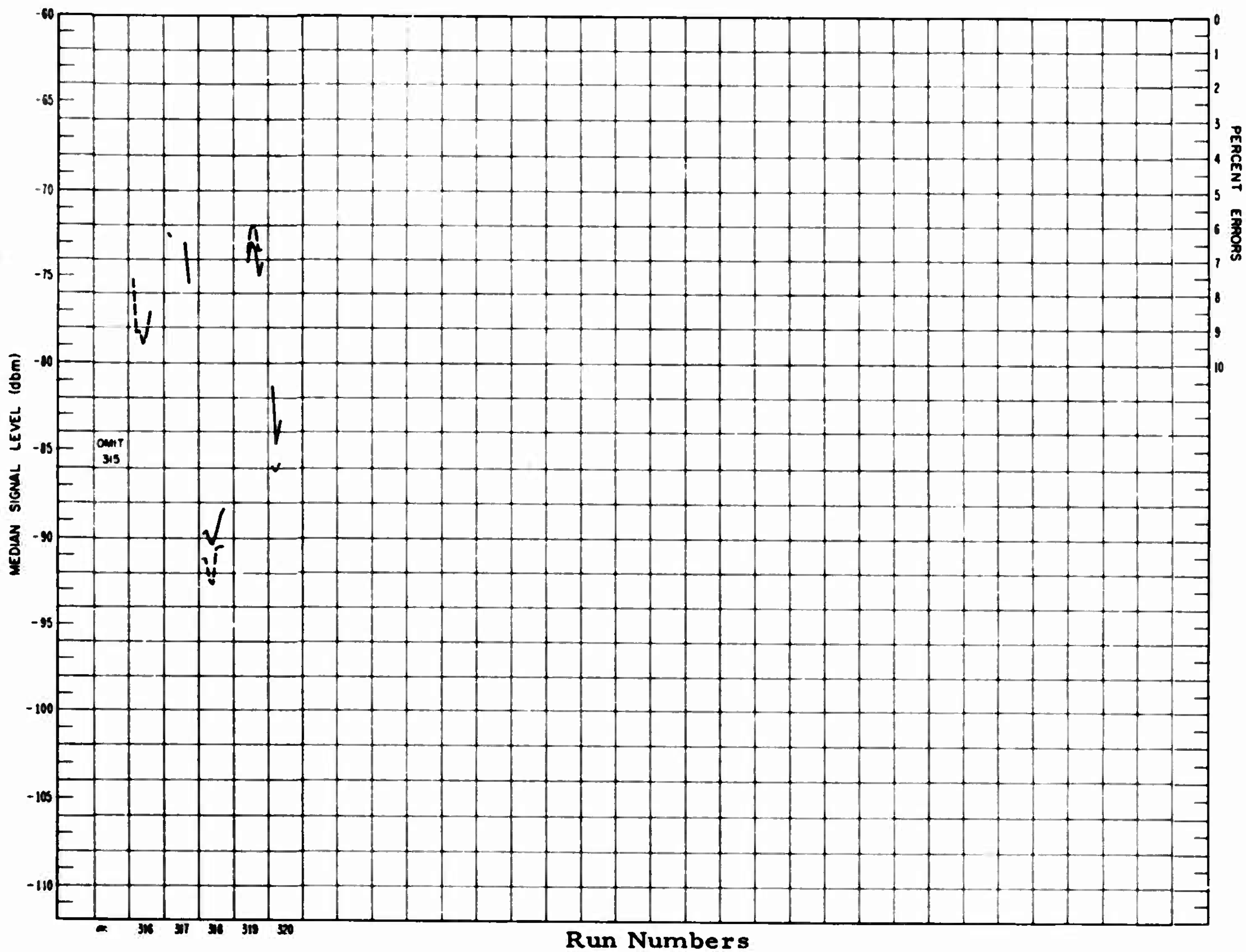


FIGURE 49. Medians and Frederick error rates for the Δ Mod system.

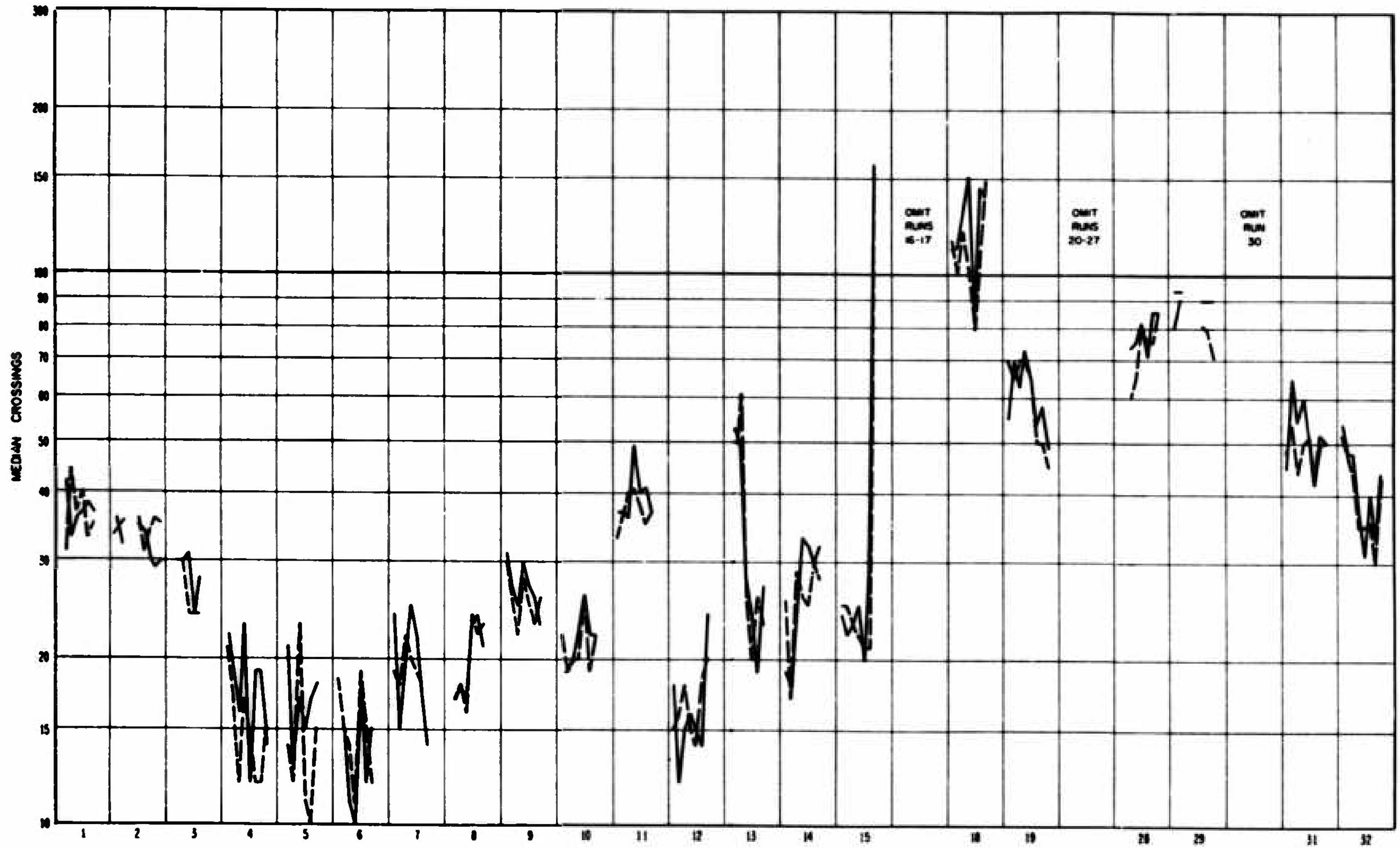


Figure 50. Median crossings for the FDM system.

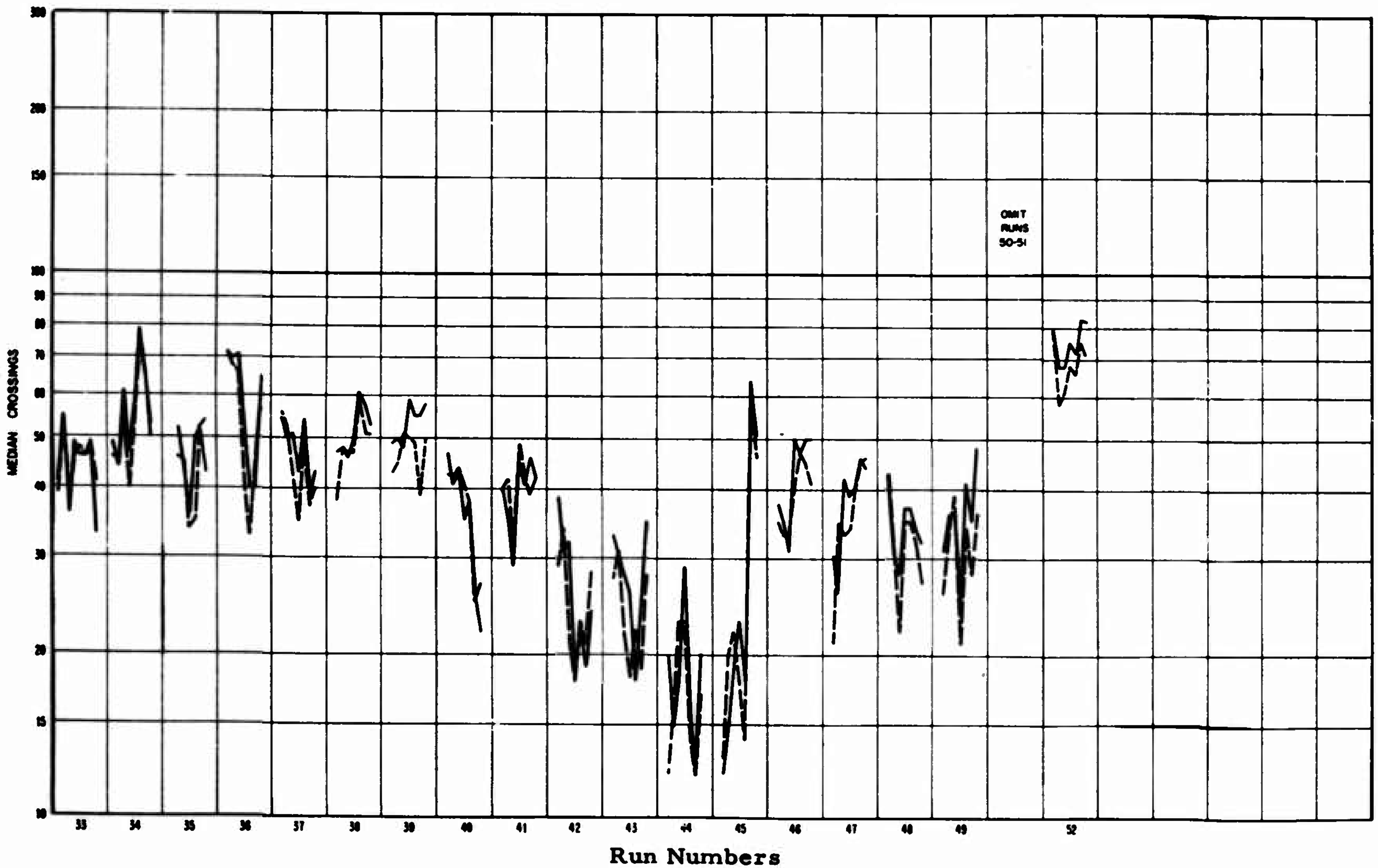


Figure 51. Median crossings for the FDM system.

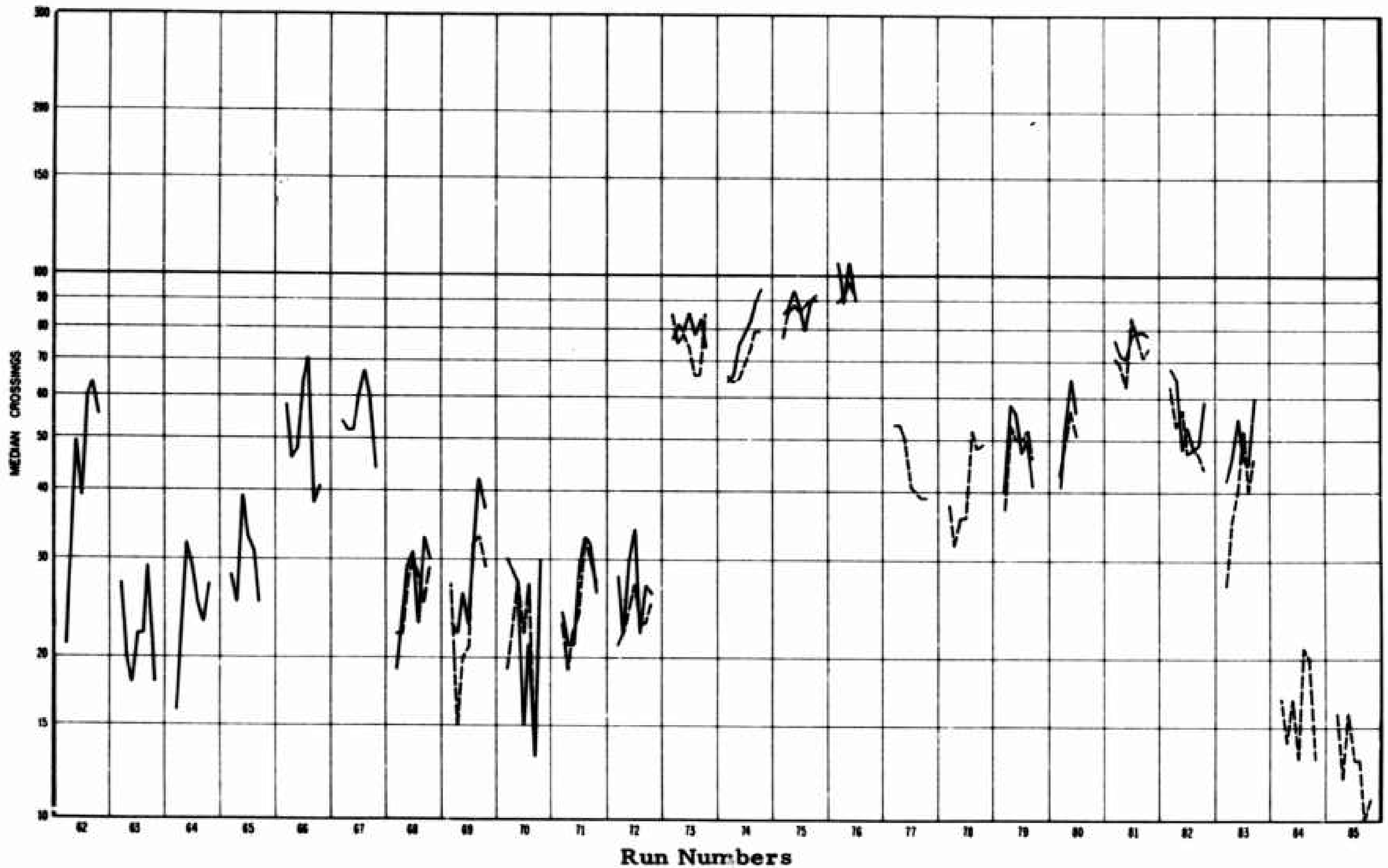


Figure 52. Median crossings for the FDM system.

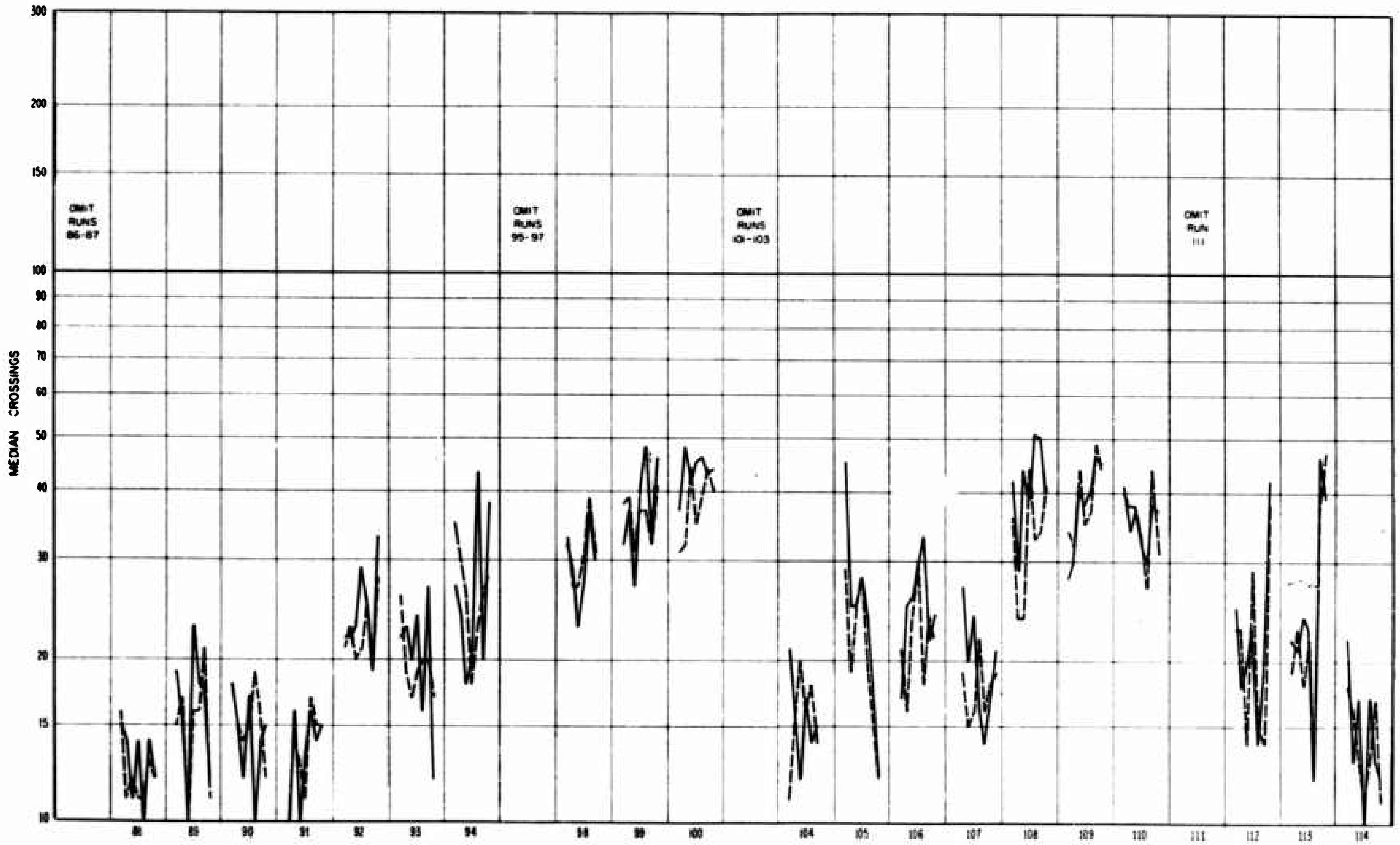


Figure 53. Median crossings for the FDM system.

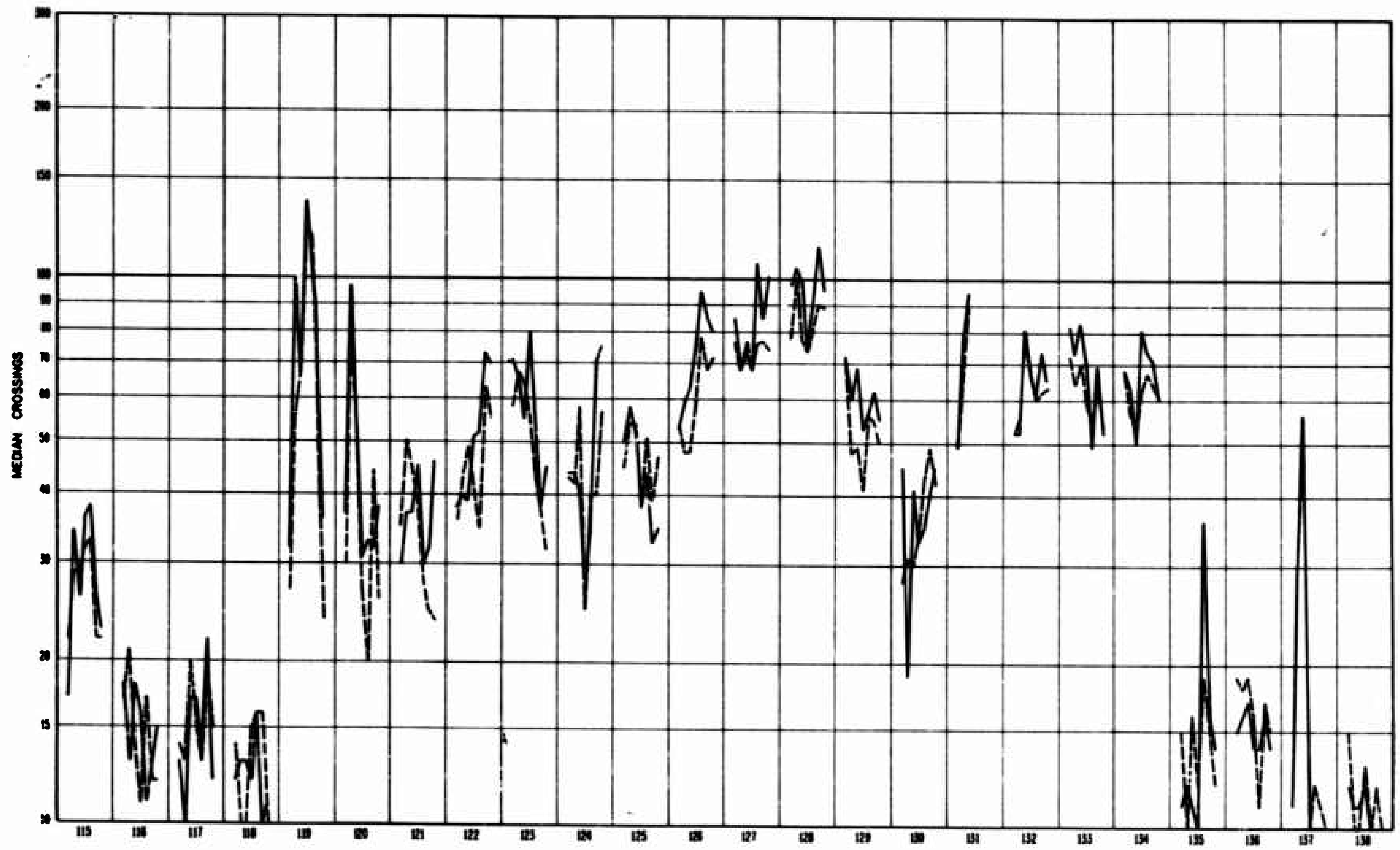
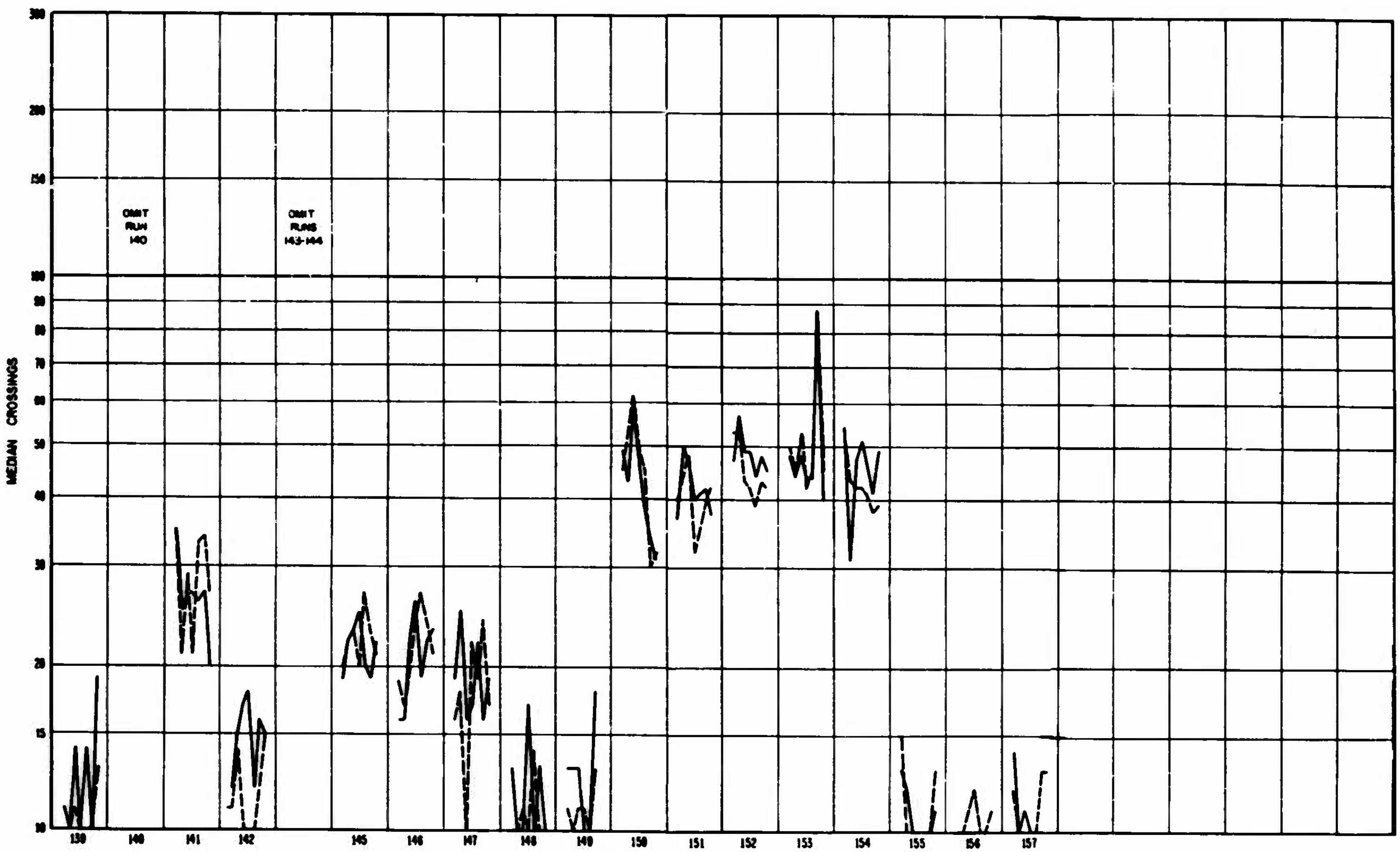


Figure 54. Median crossings for the FDM system.



Run Numbers

Figure 55. Median crossings for the FDM system.

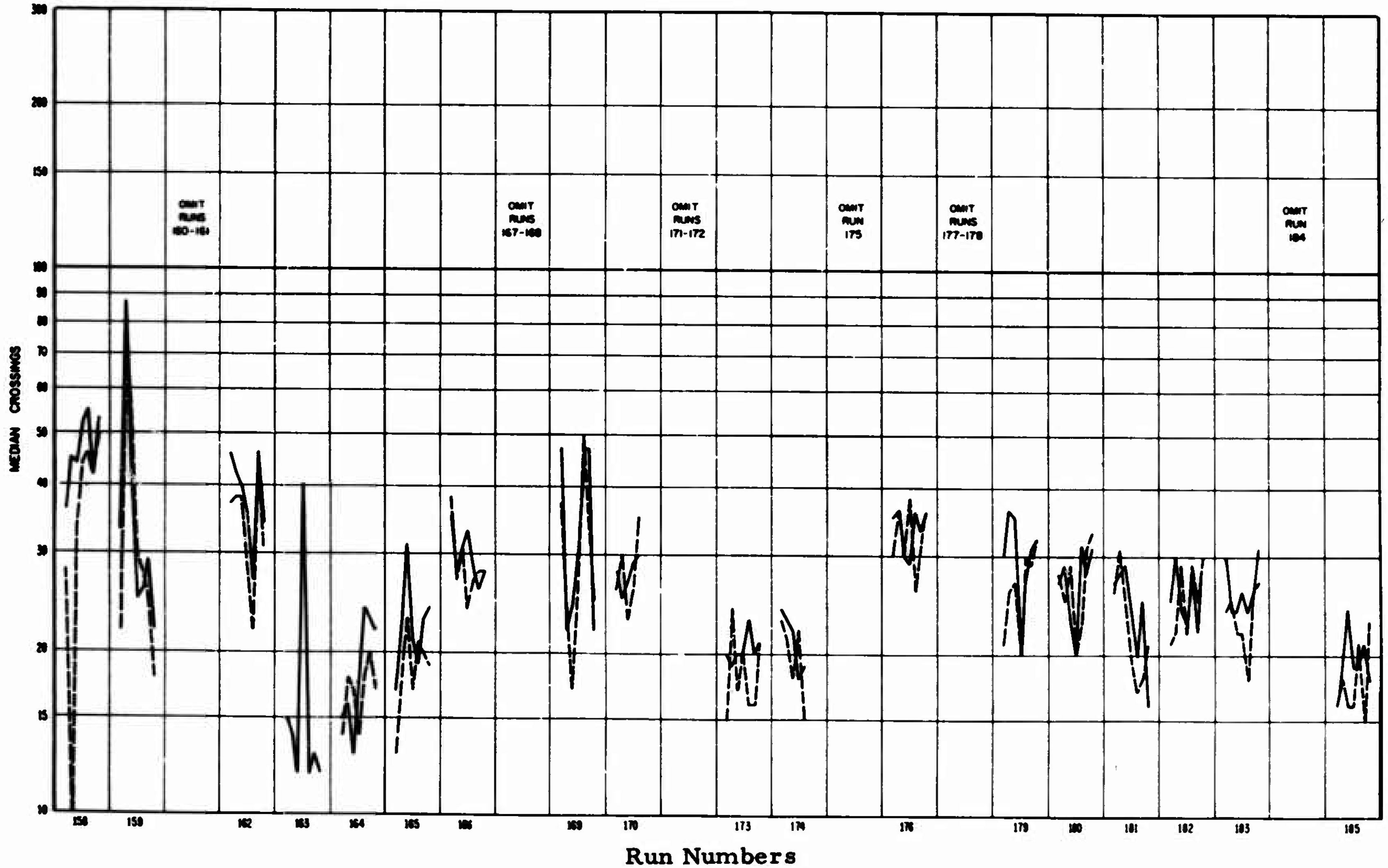


Figure 56. Median crossings for the FDM system.

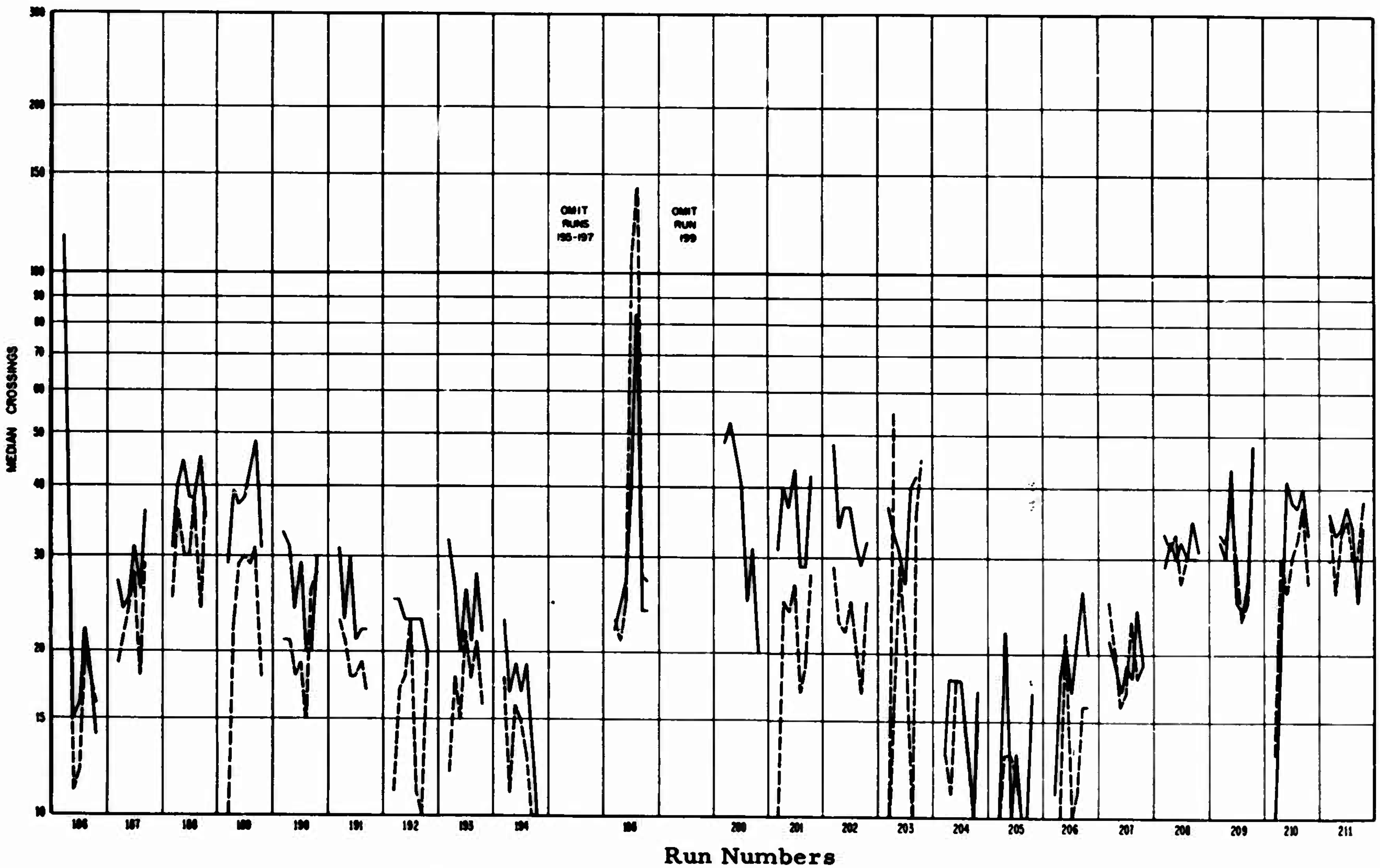


Figure 57. Median crossings for the FDM system.

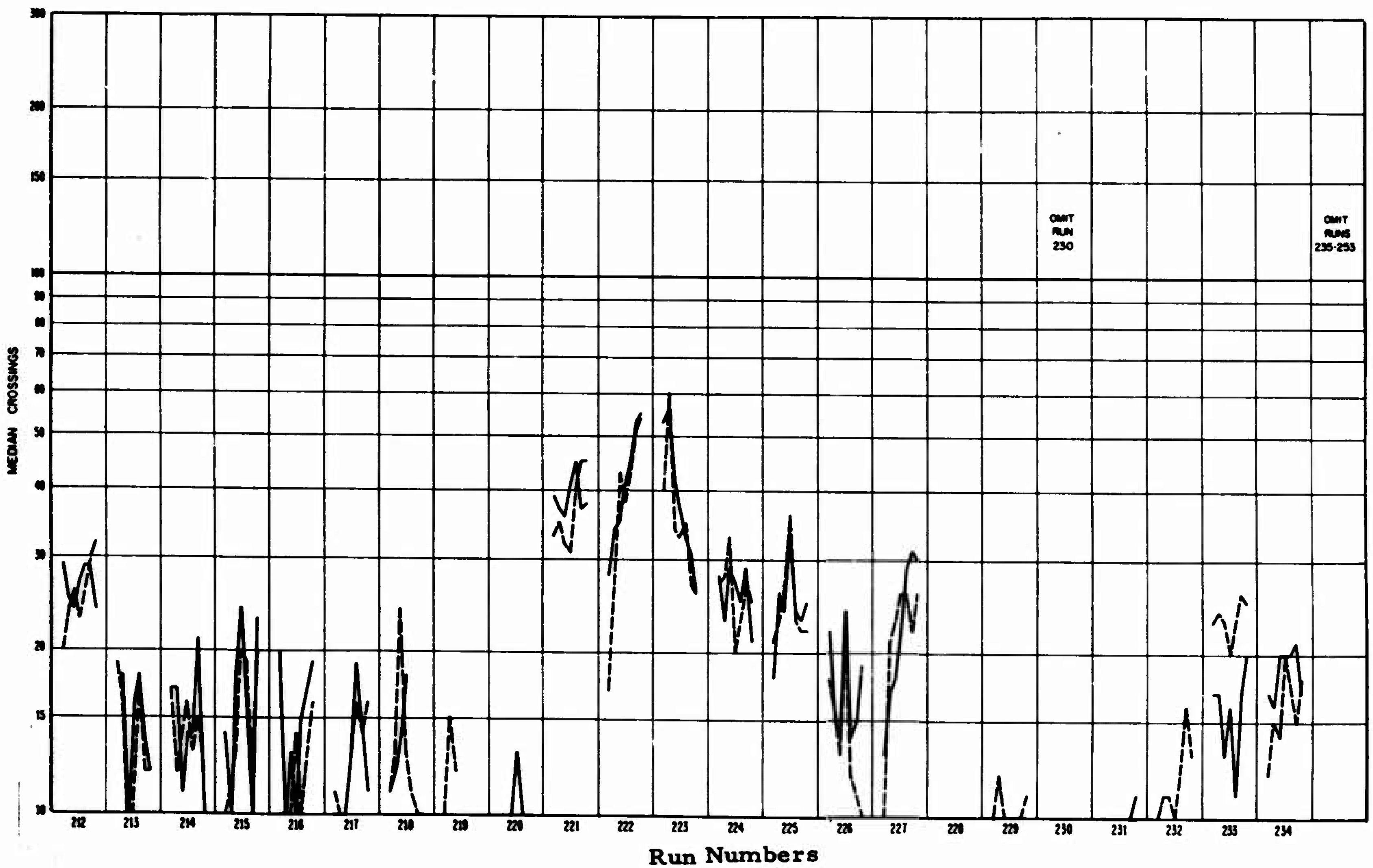


Figure 58. Median crossings for the FDM system.

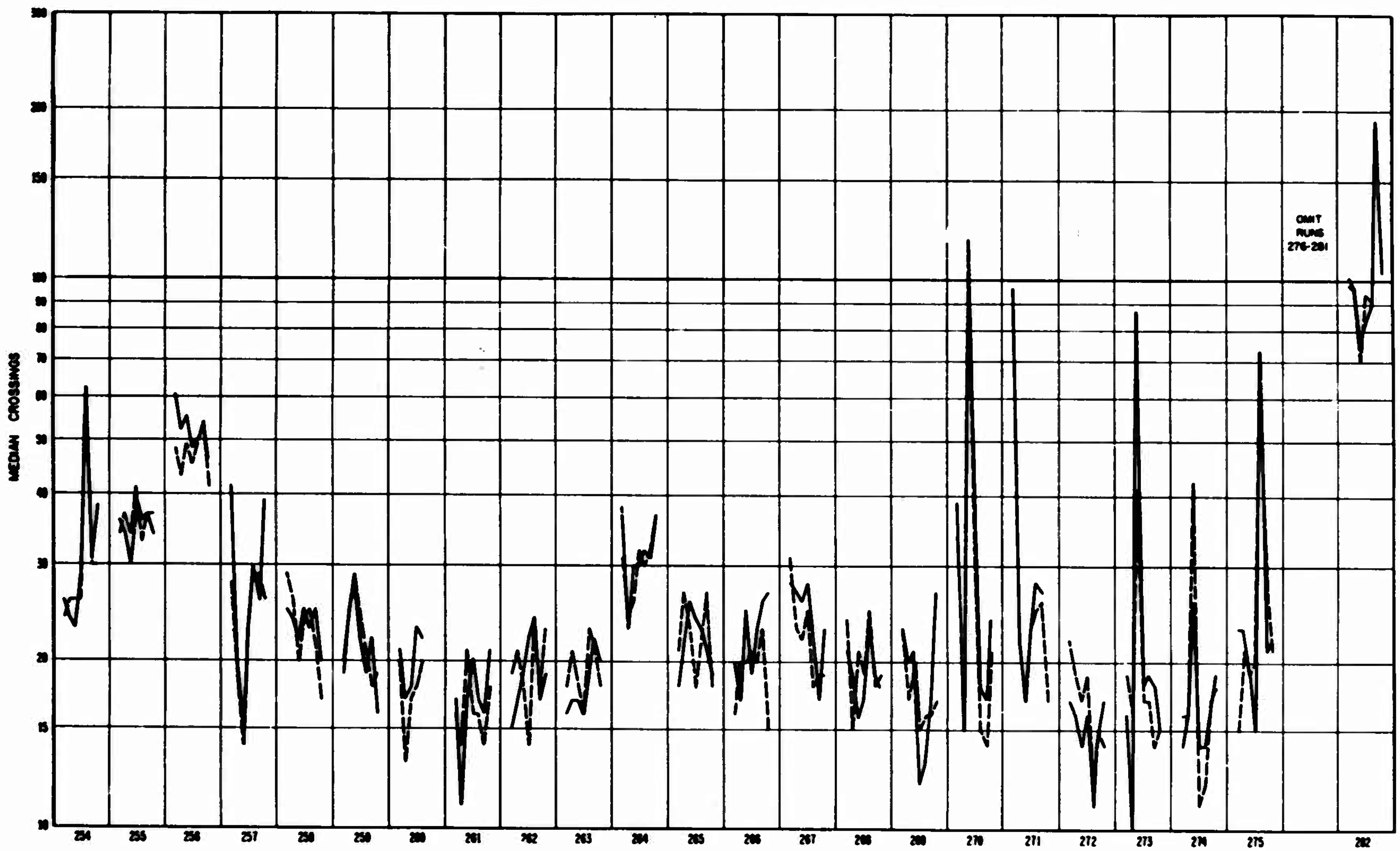
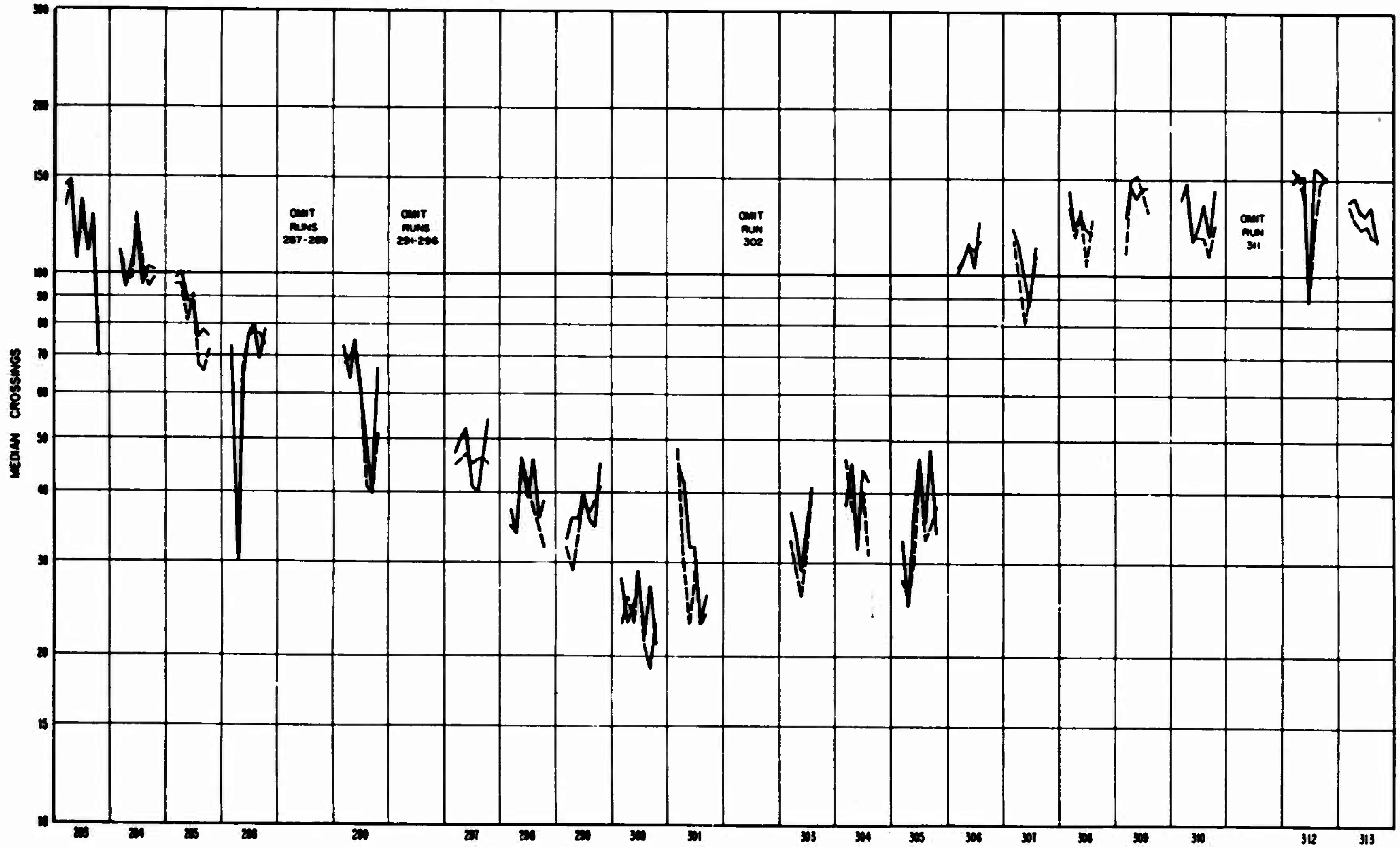
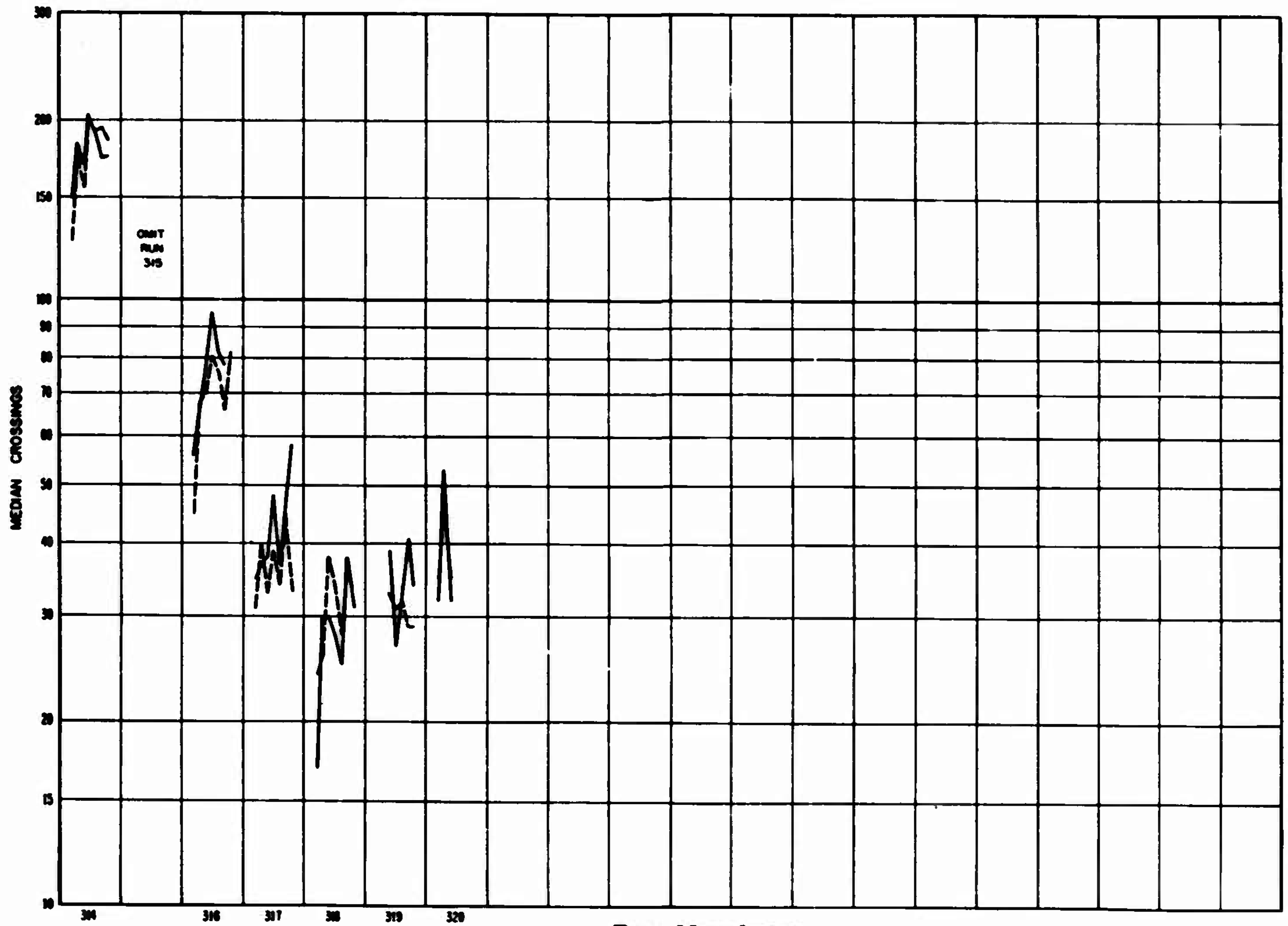


Figure 59. Median crossings for the FDM system.



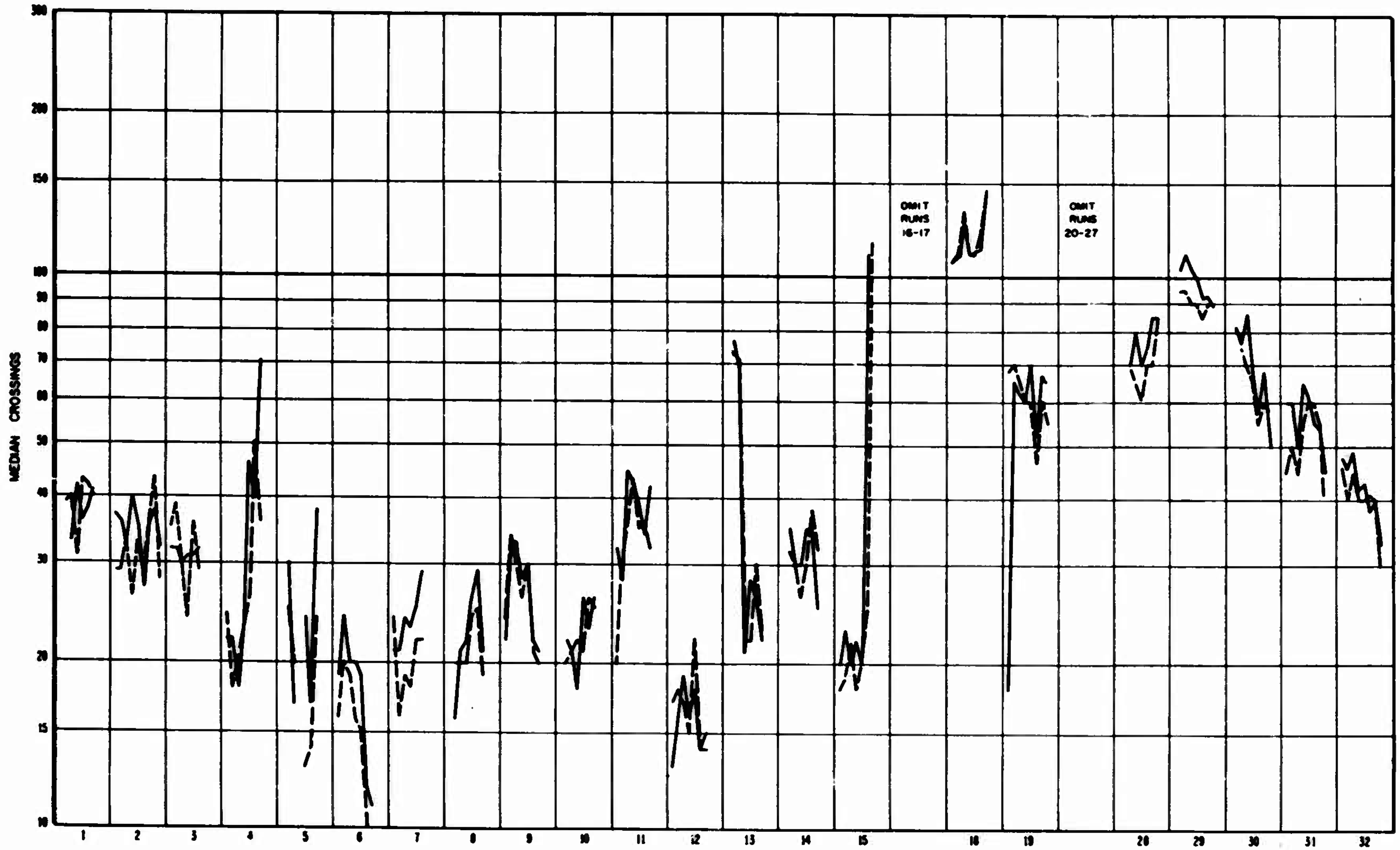
Run Numbers

Figure 60. Median crossings for the FDM system.



Run Numbers

Figure 61. Median crossings for the FDM system.



Run Numbers

Figure 62. Median crossings for the PCM system.

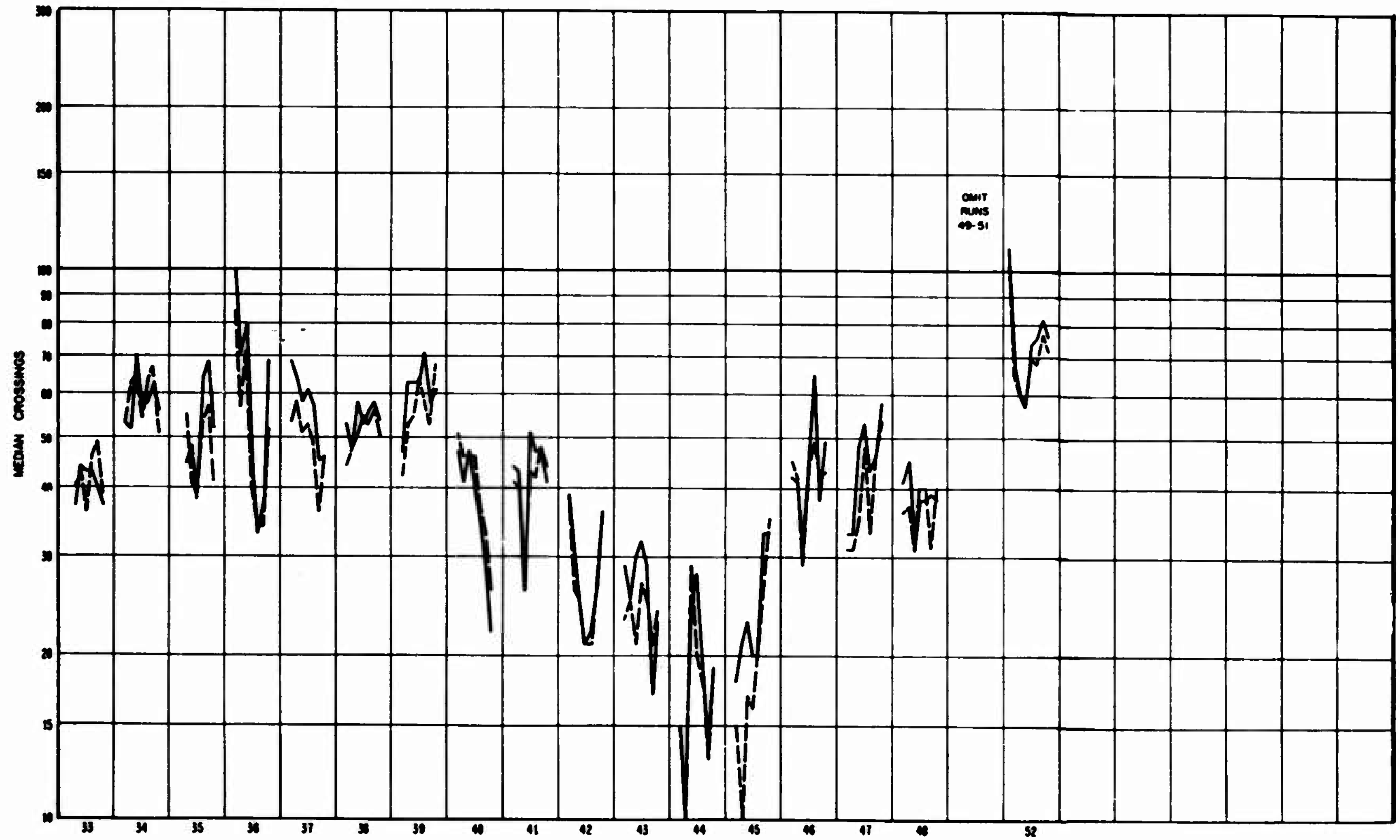


Figure 63. Median crossings for the PCM system.

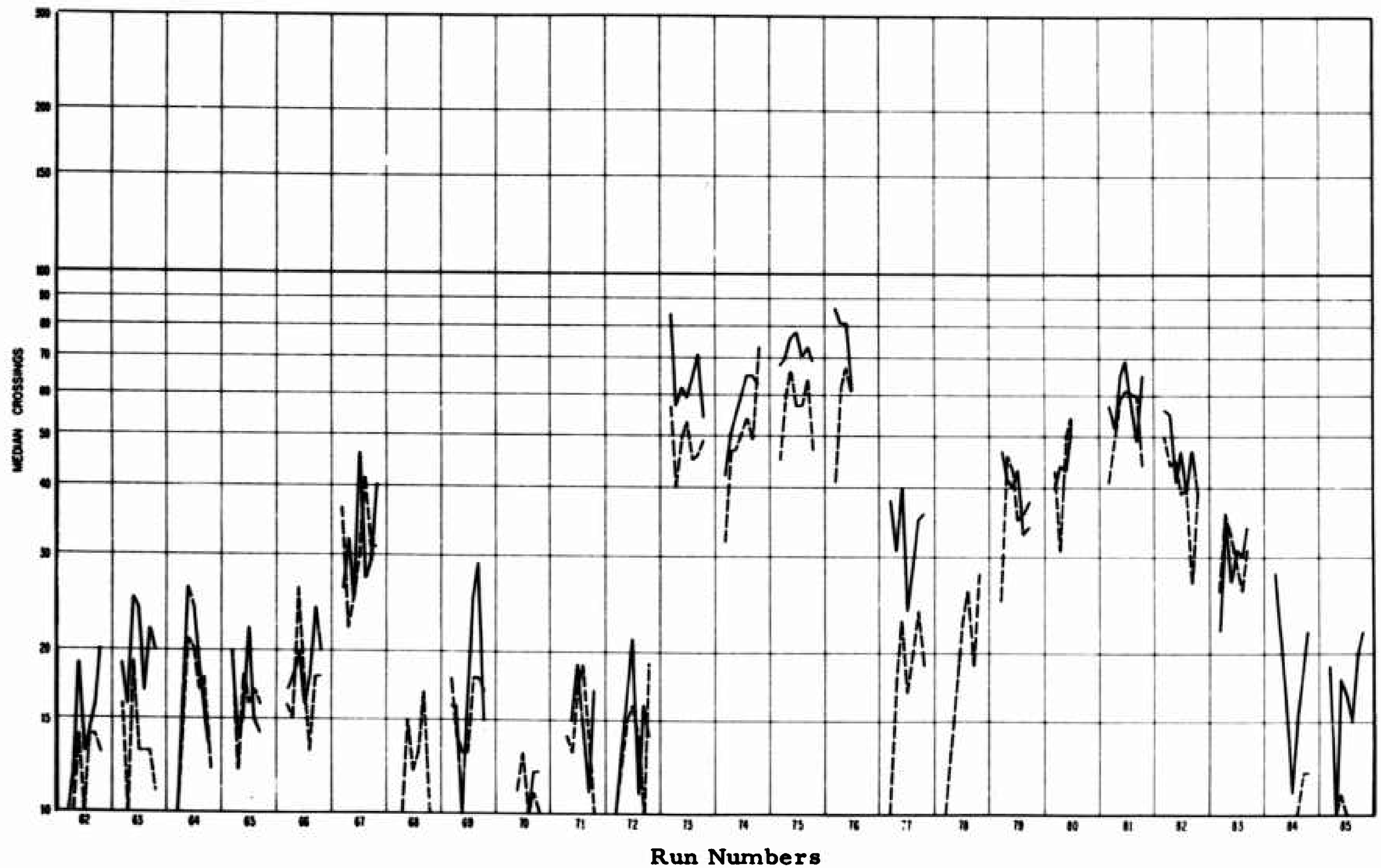


FIGURE 64. Median crossings for the PPM system.

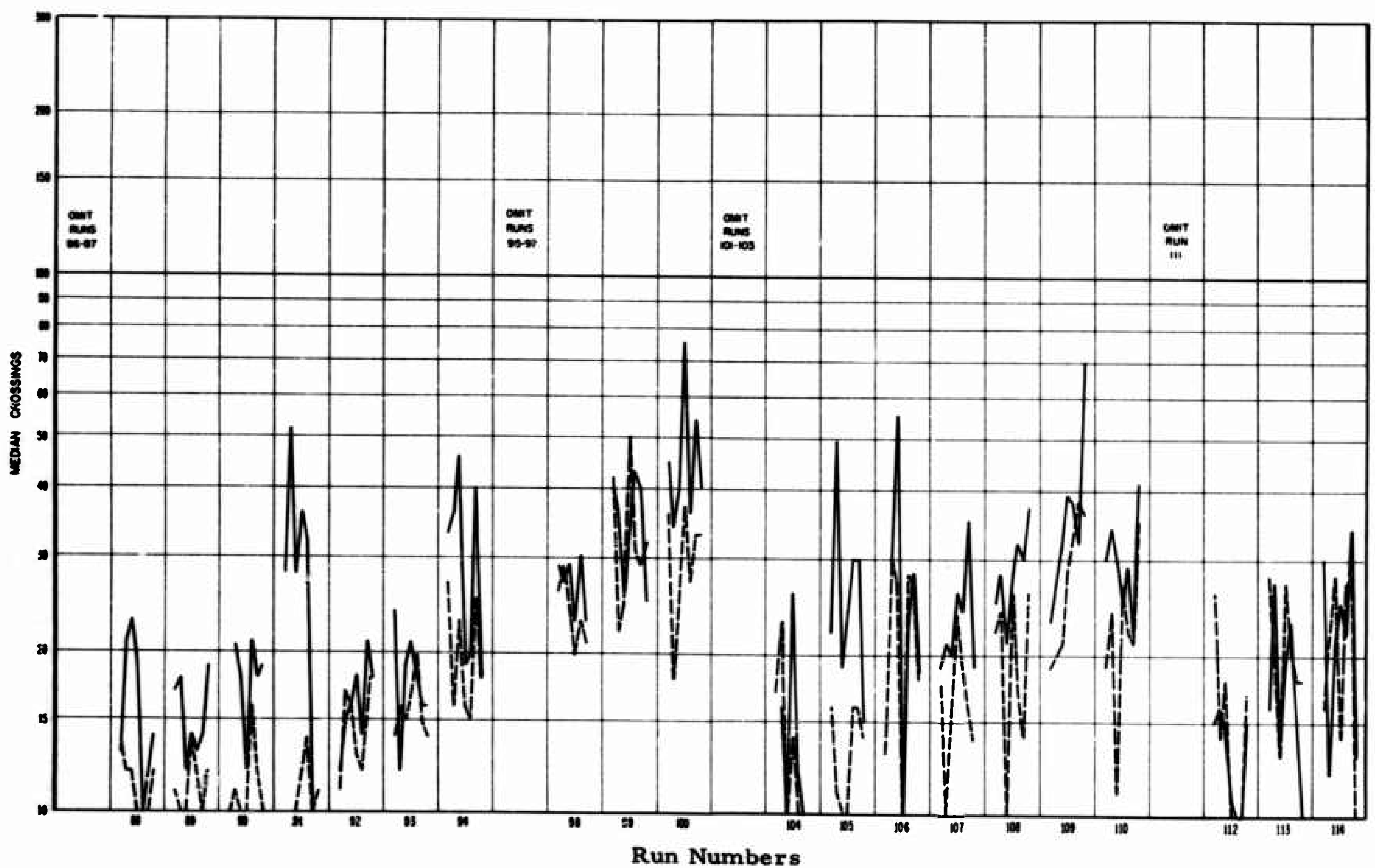


FIGURE 65. Median crossings for the PPM system.

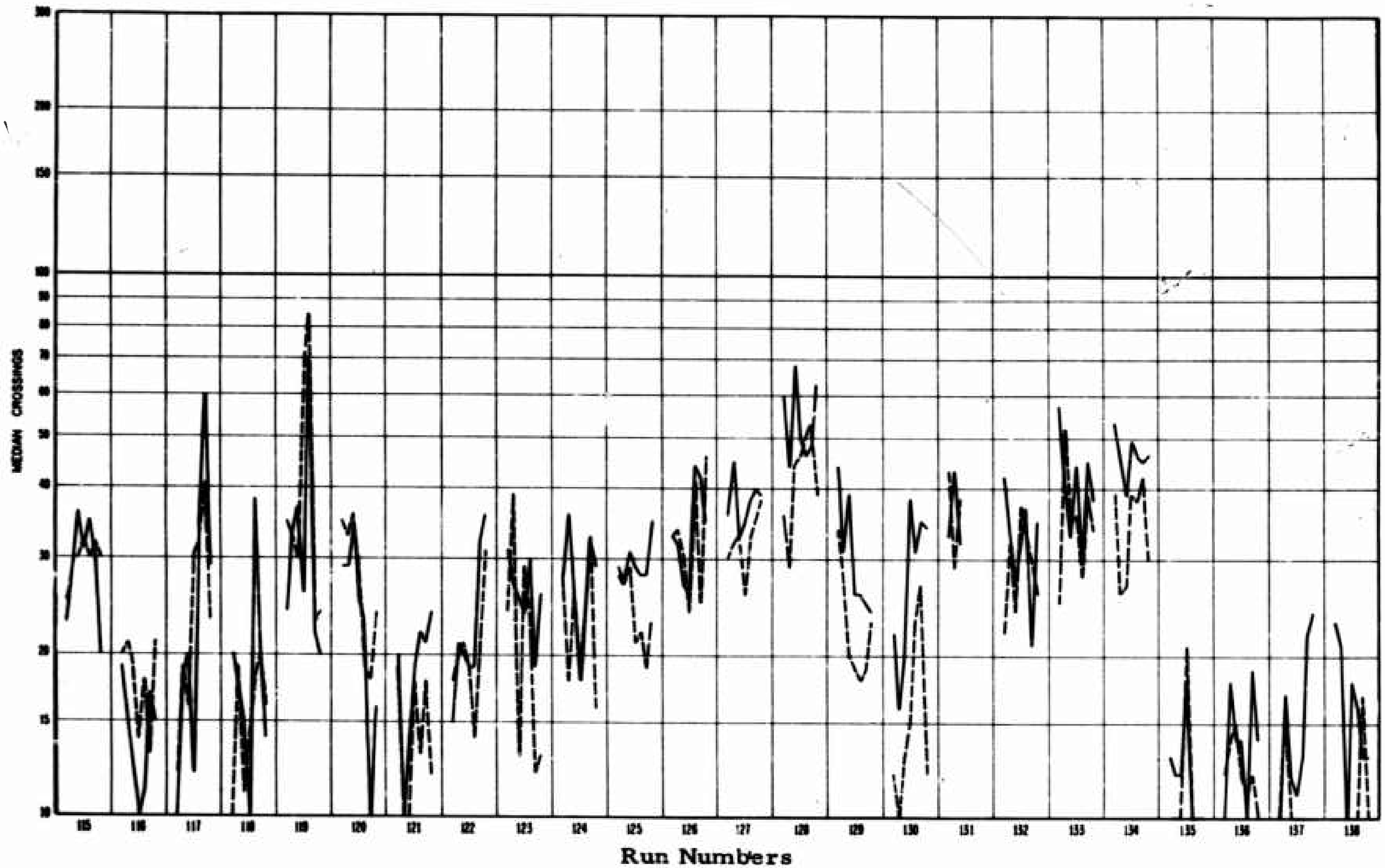


FIGURE 66. Median crossings for the PPM system.

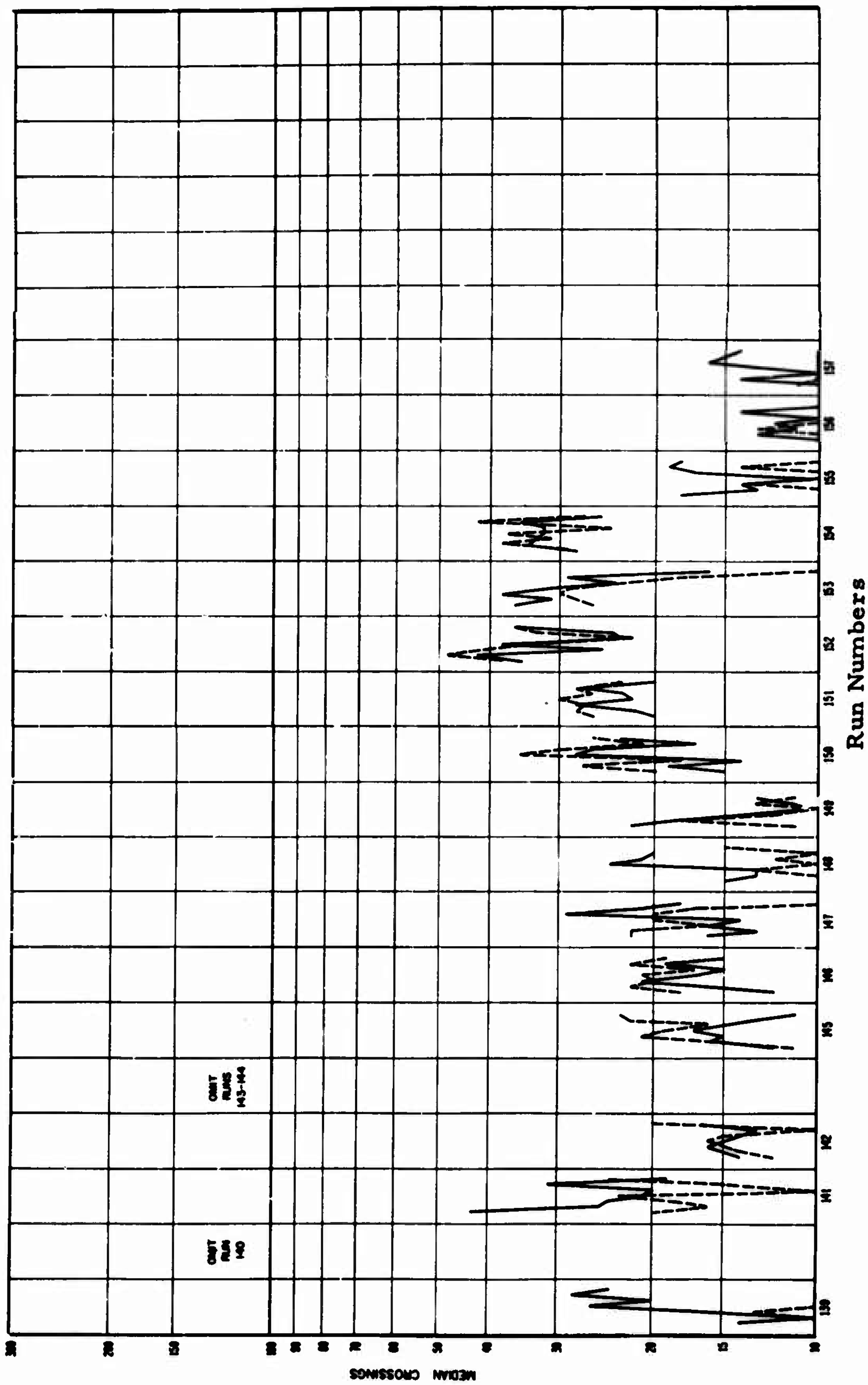


FIGURE 67. Median crossings for the PPM system.

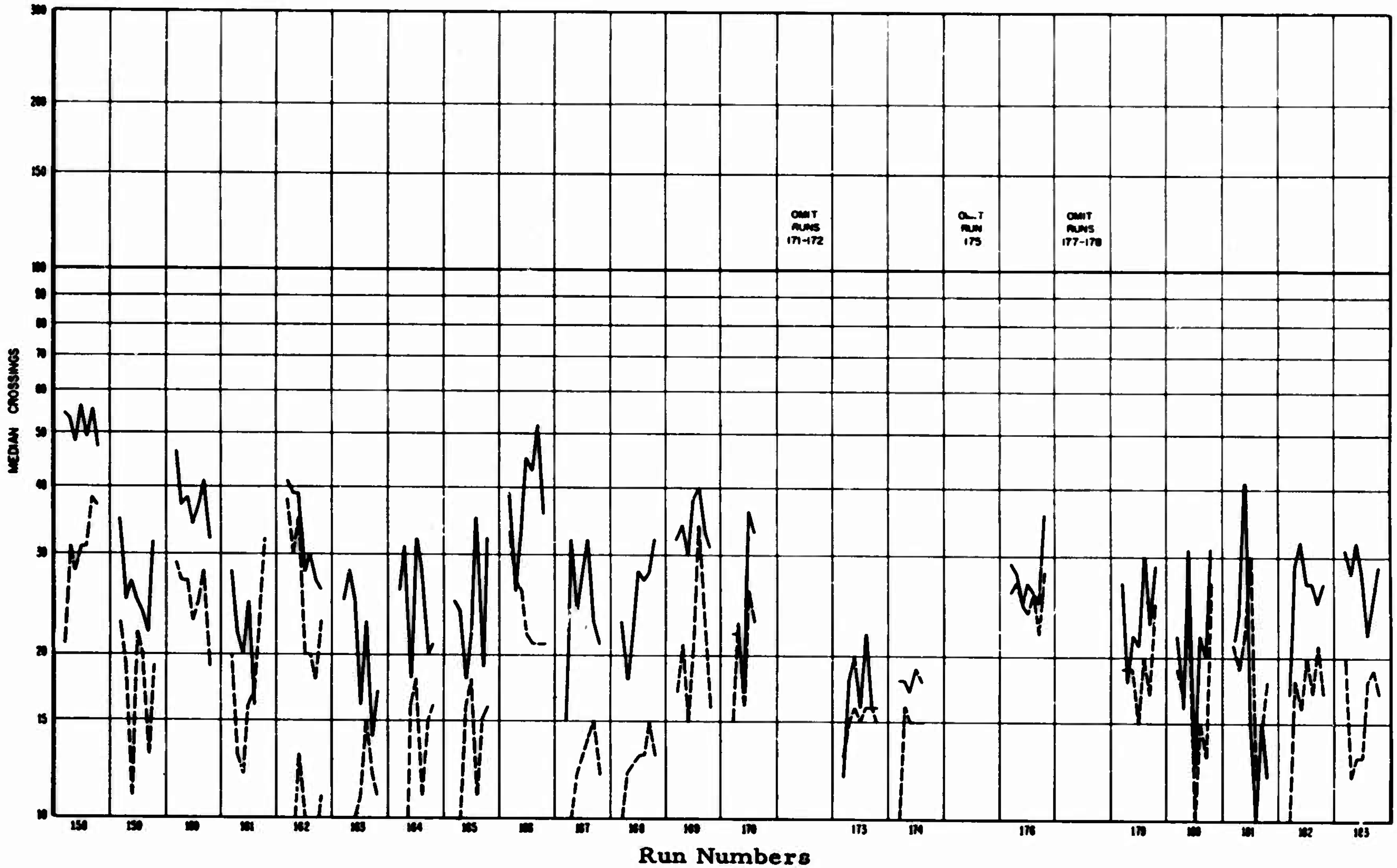


FIGURE 68. Median crossings for the Δ Mod system.

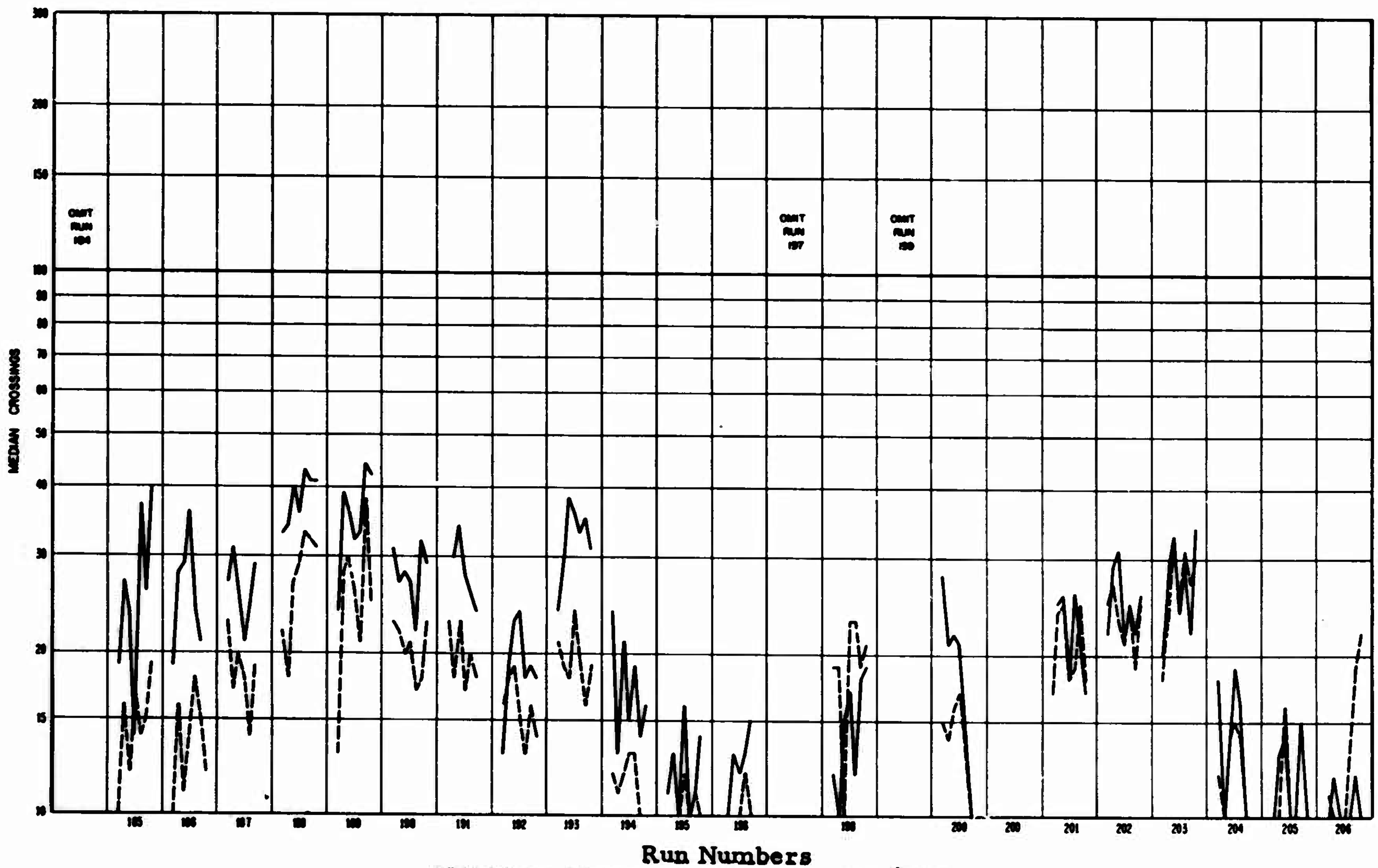


FIGURE 69. Median crossings for the Δ Mod system.

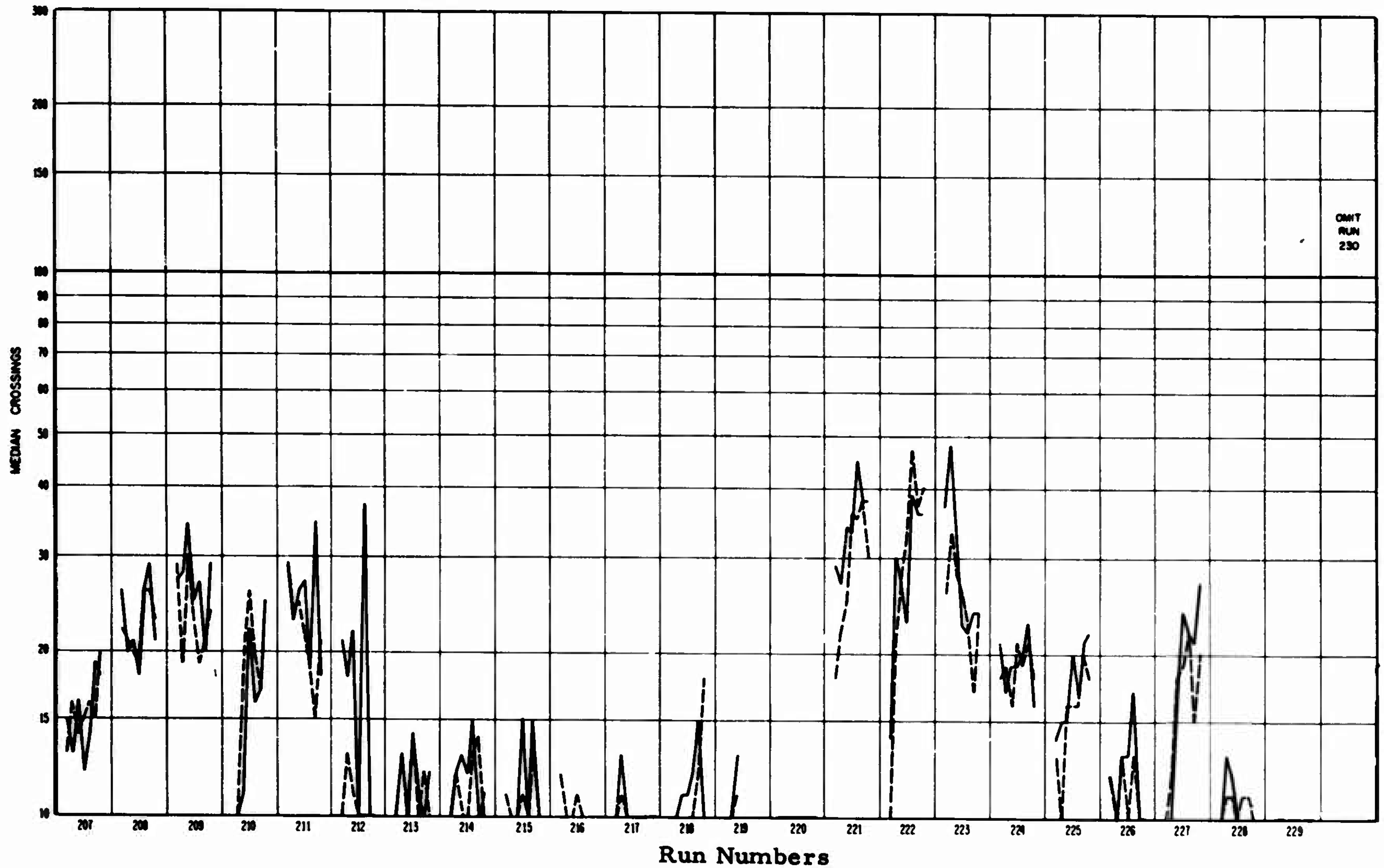


FIGURE 70. Median crossings for the ▲ Mod system.

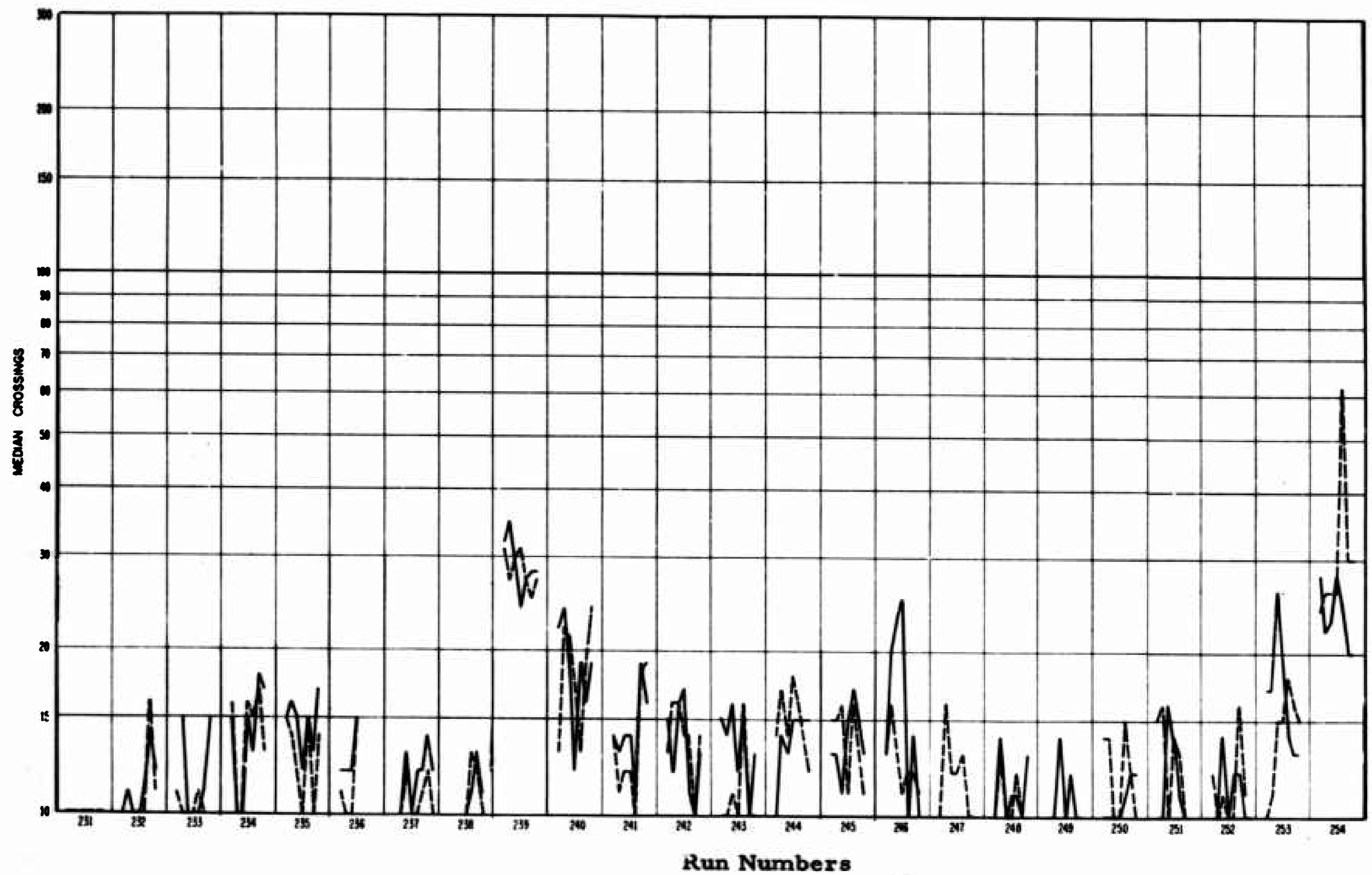


FIGURE 71. Median crossings for the Δ Mod system.

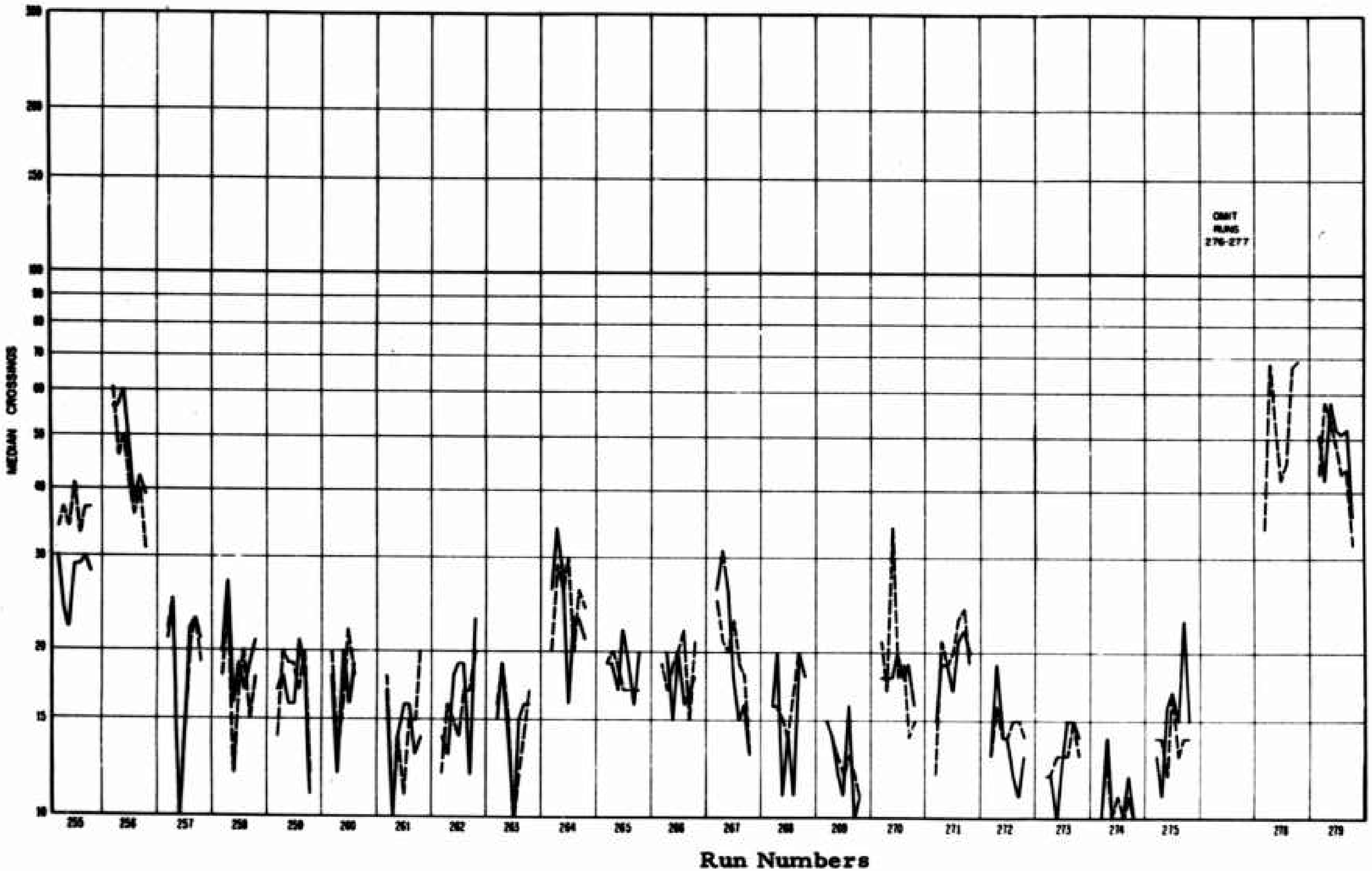


FIGURE 72. Median crossings for the Δ Mod System.

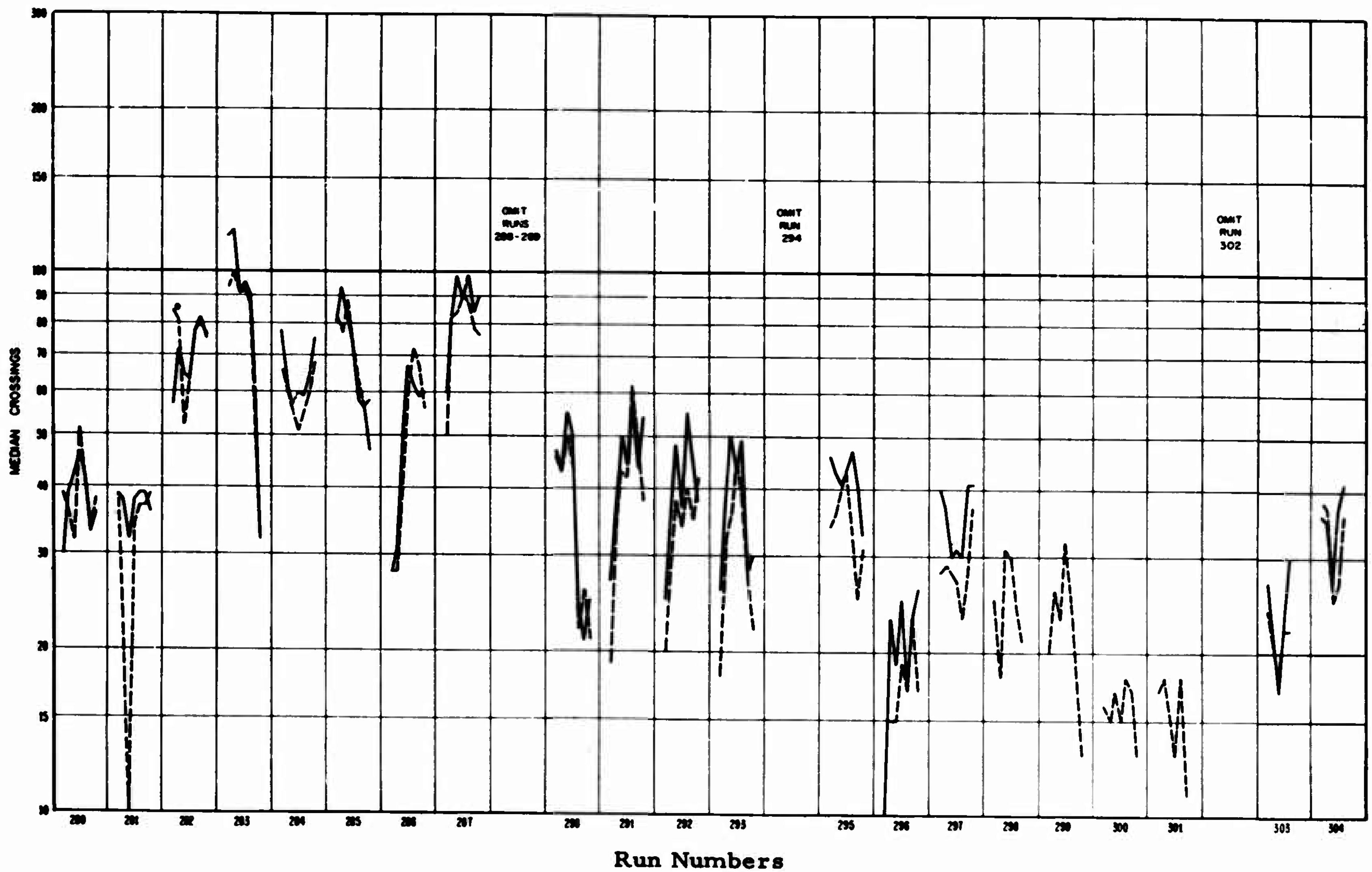


FIGURE 73. Median crossings for the Δ Mod system.

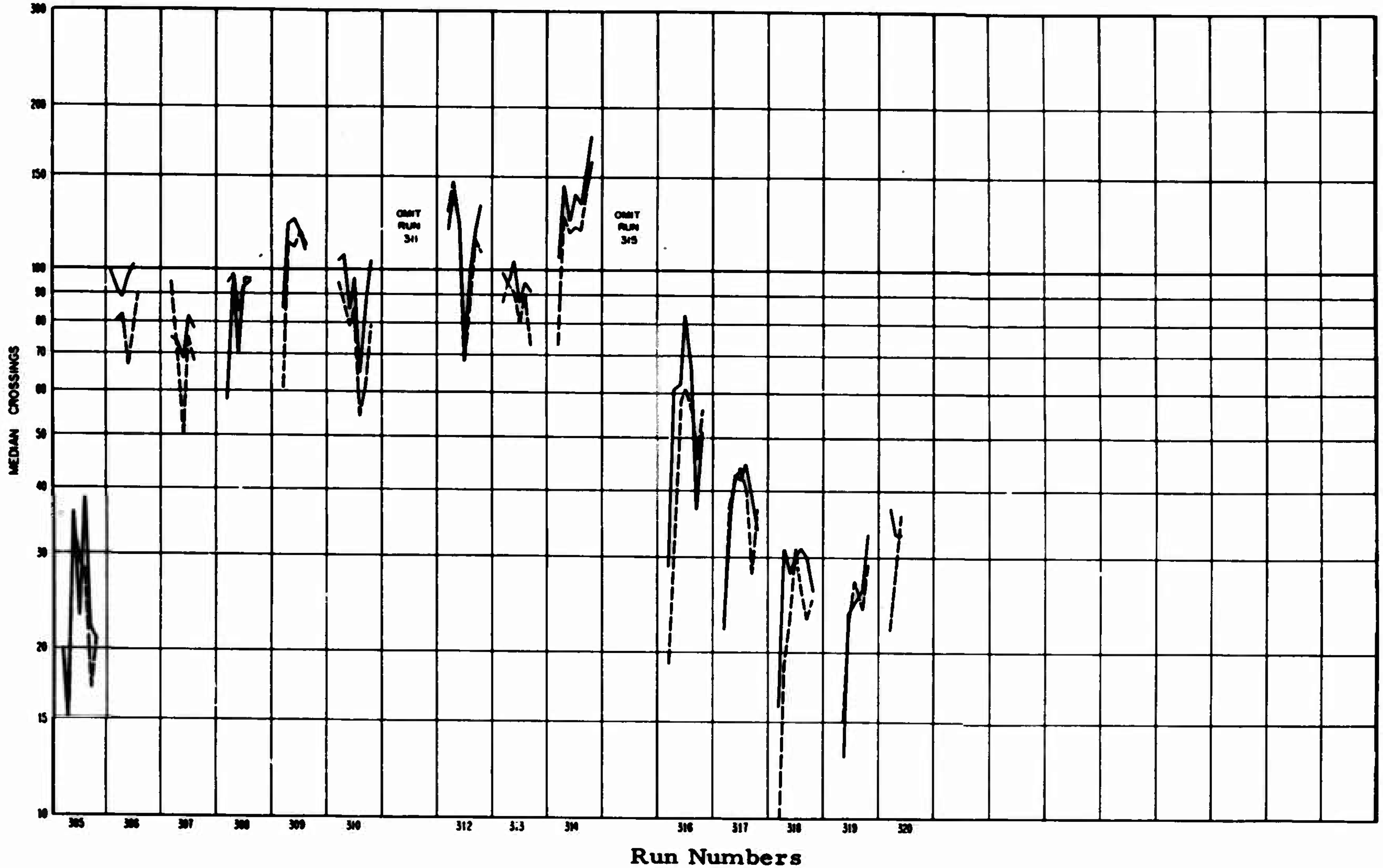


FIGURE 74. Median crossings for the Δ Mod system.

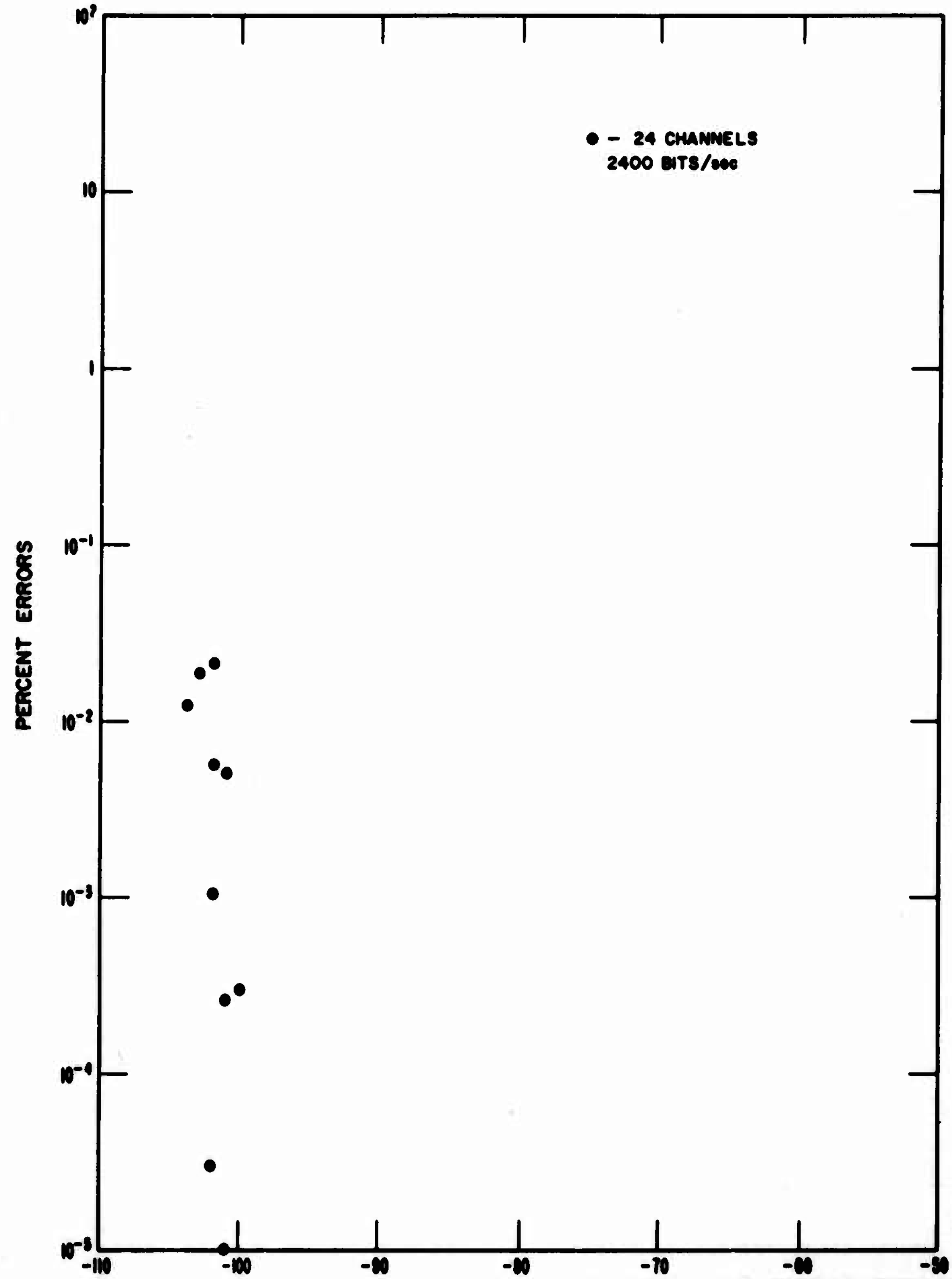


Figure 75. Back-to-back FDM Frederick.

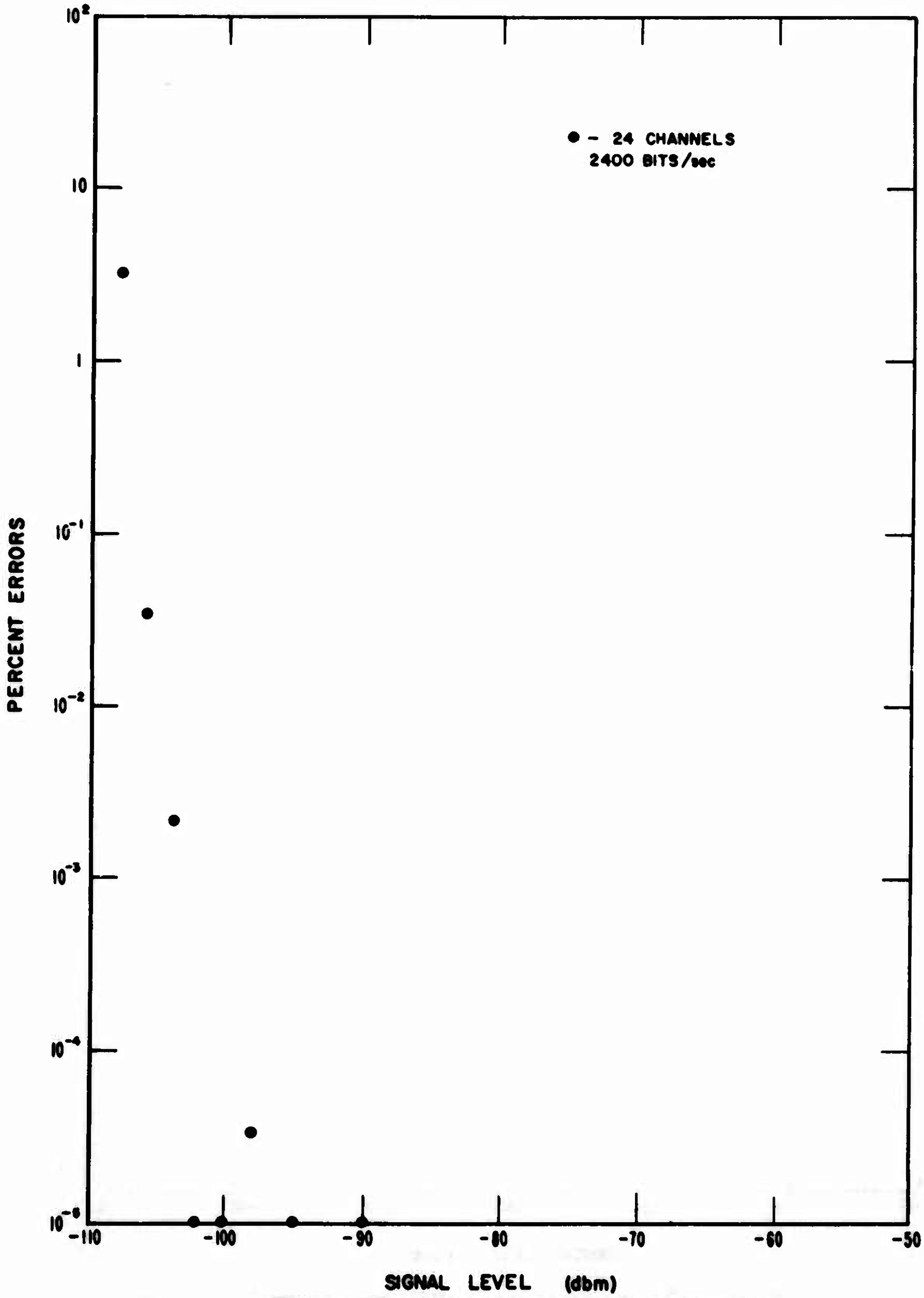


Figure 76. Back-to-back FDM GSC-4.

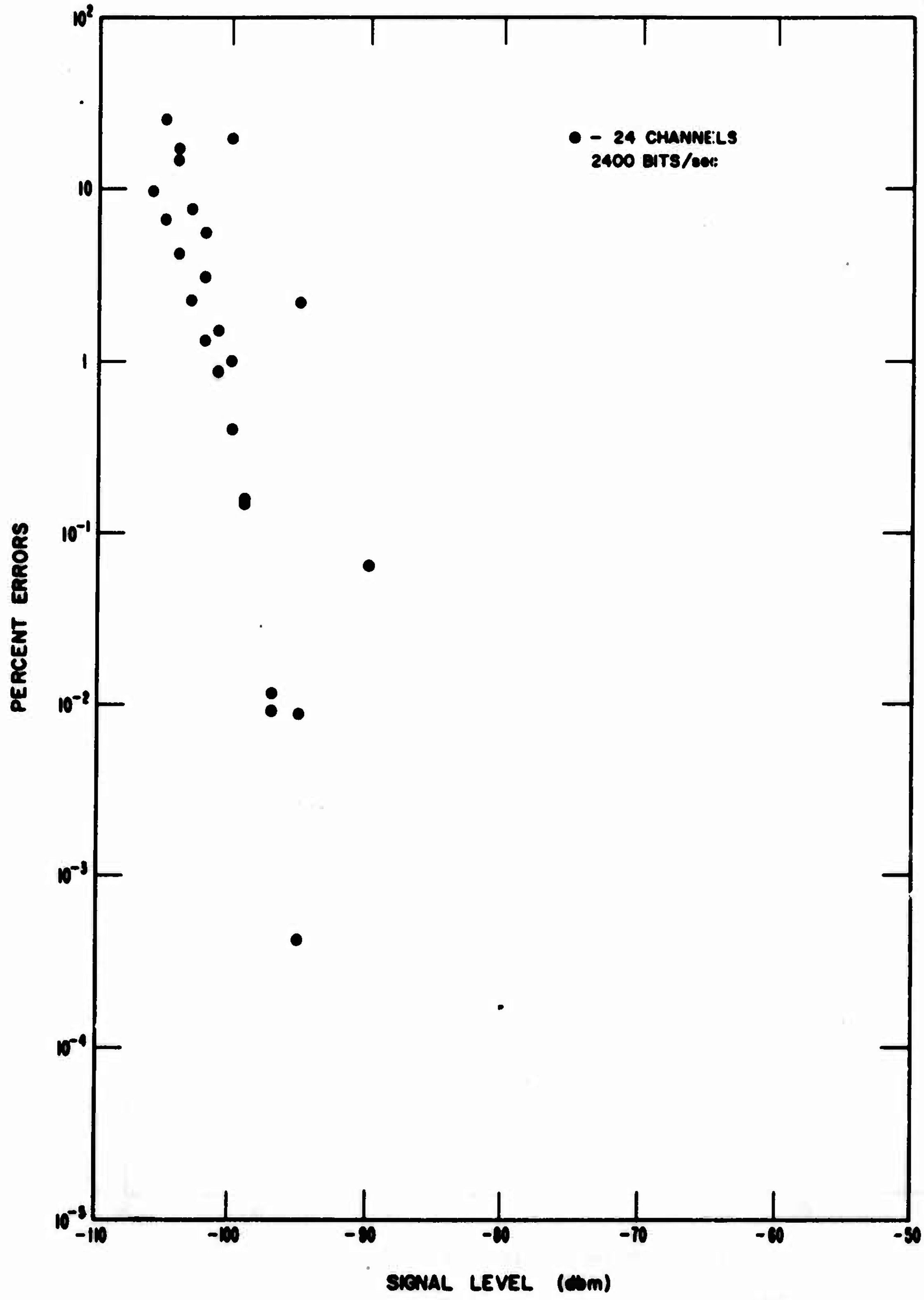


Figure 77. Back-to-back PCM Frederick.

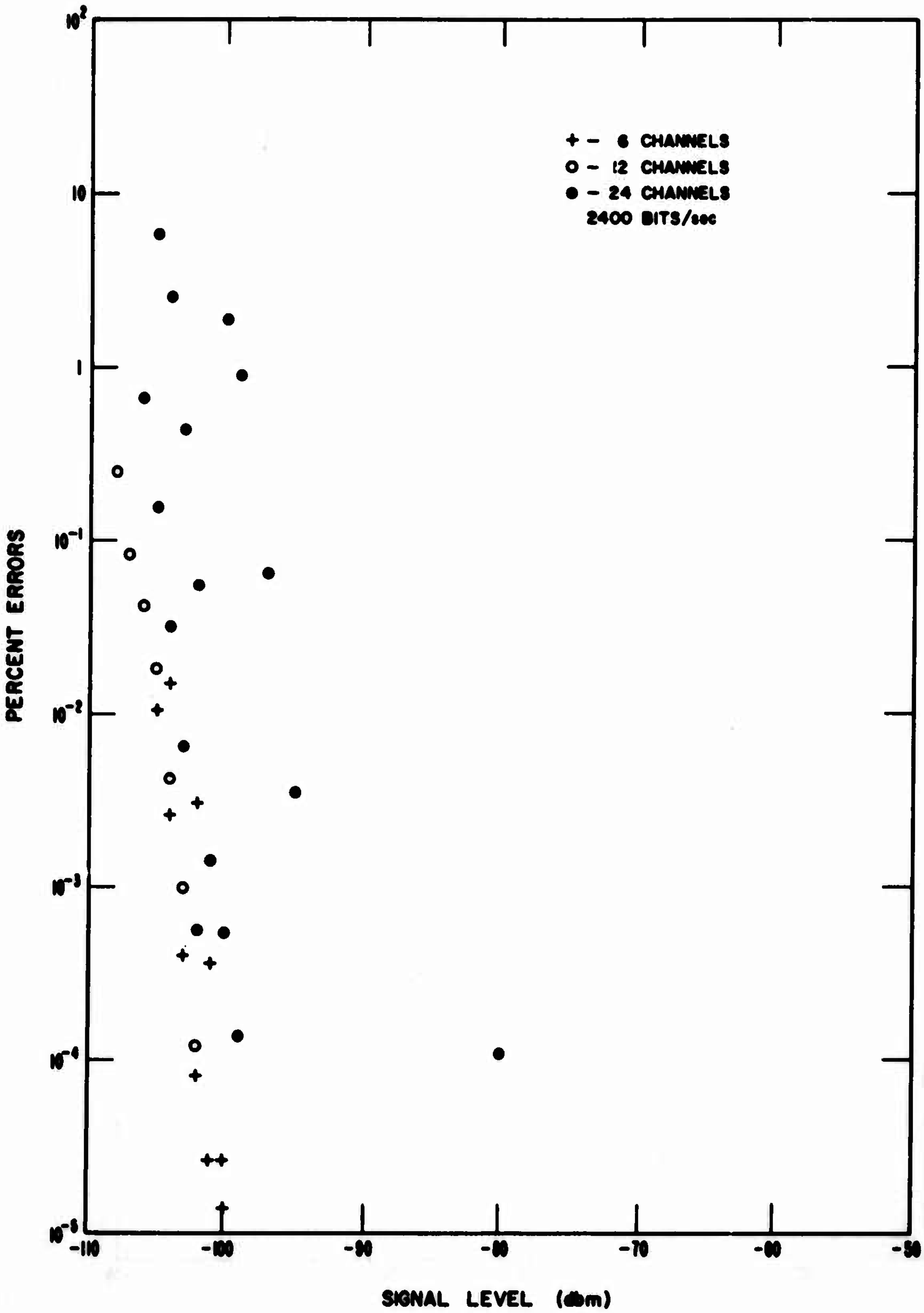


Figure 78. Back-to-back PCM GSC-4.

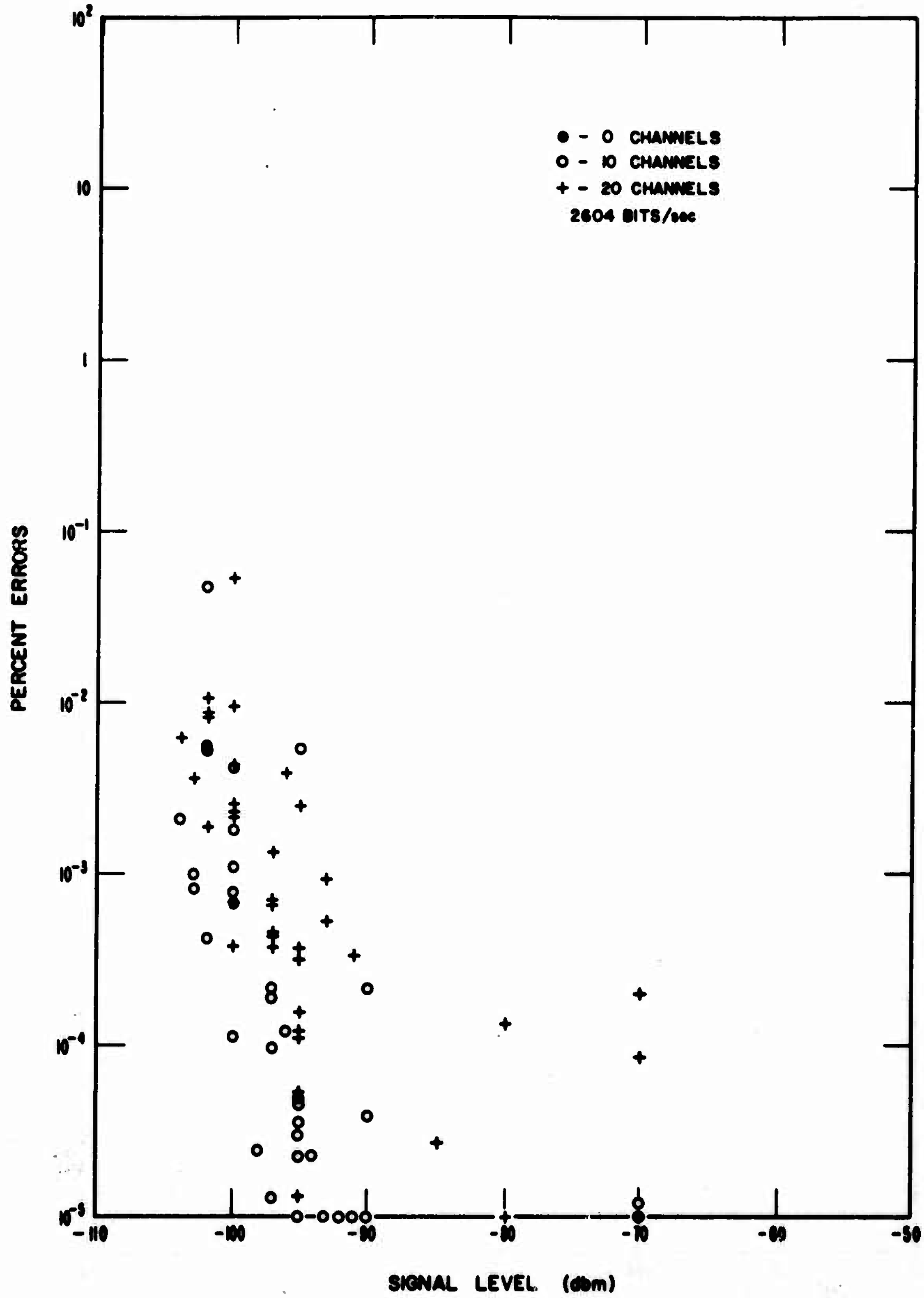


Figure 79. Back-to-back PPM Frederick.

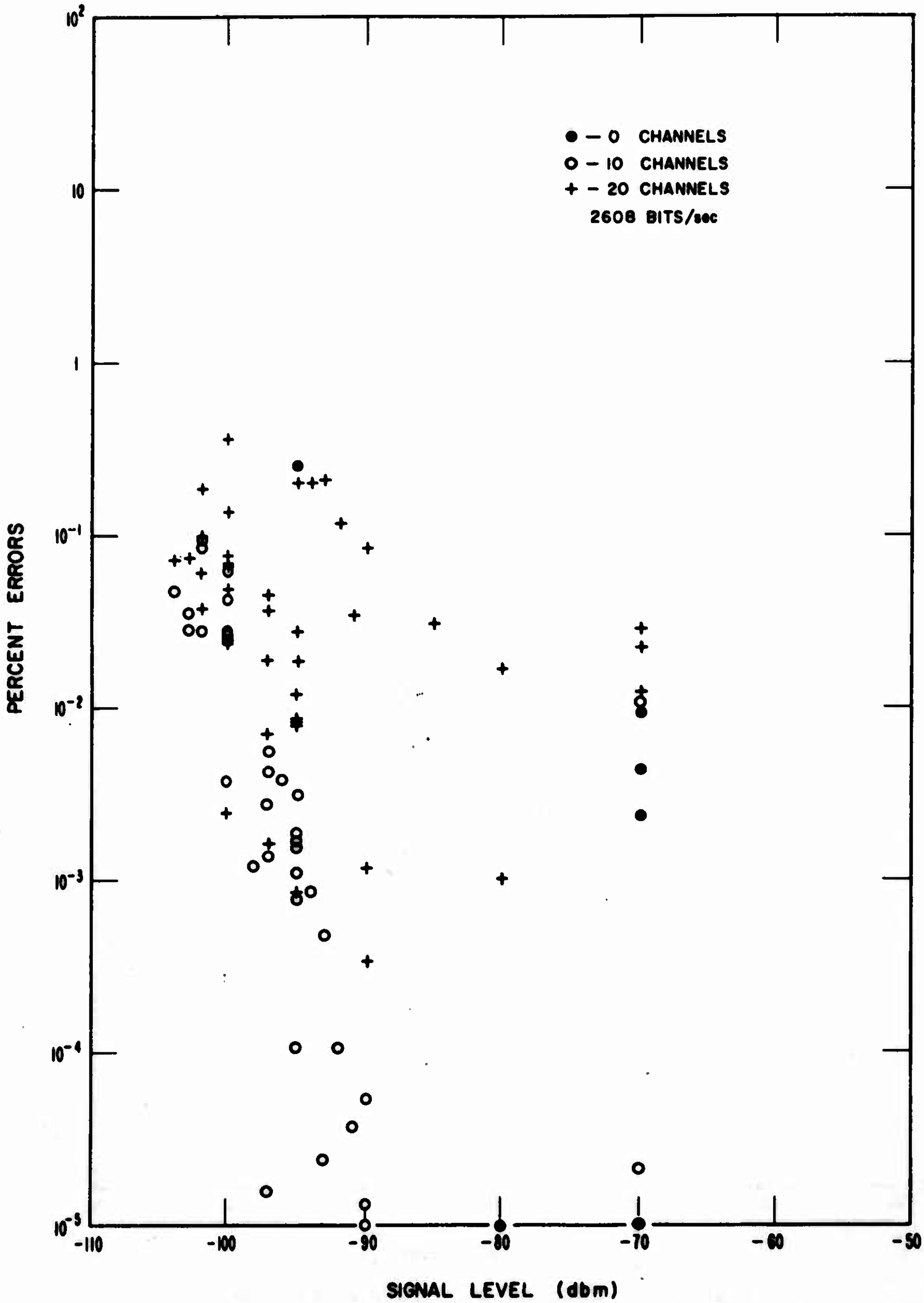


Figure 80. Back-to-back PPM GSC-4.

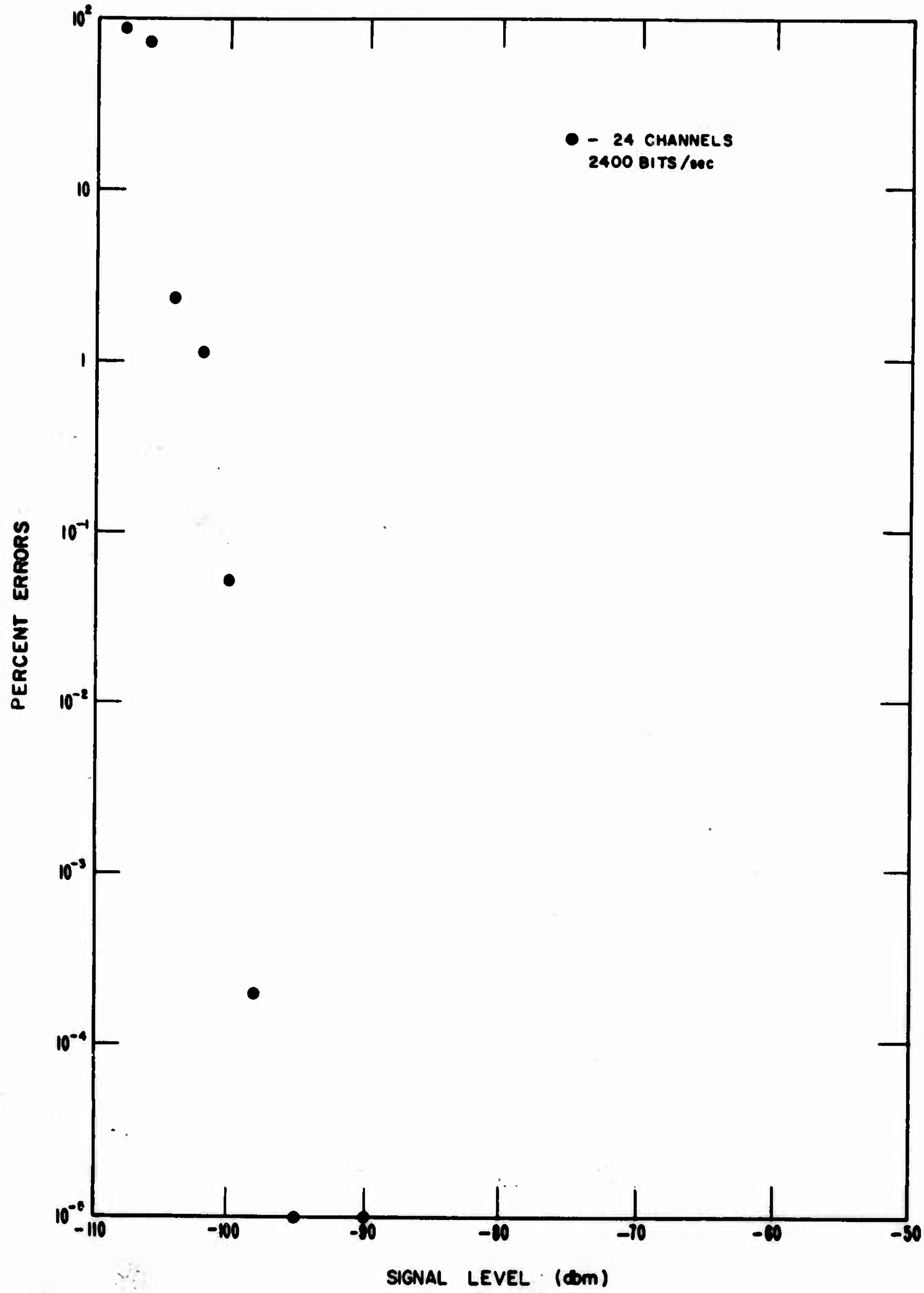


Figure 81. Back-to-back Δ Mod. Frederick.

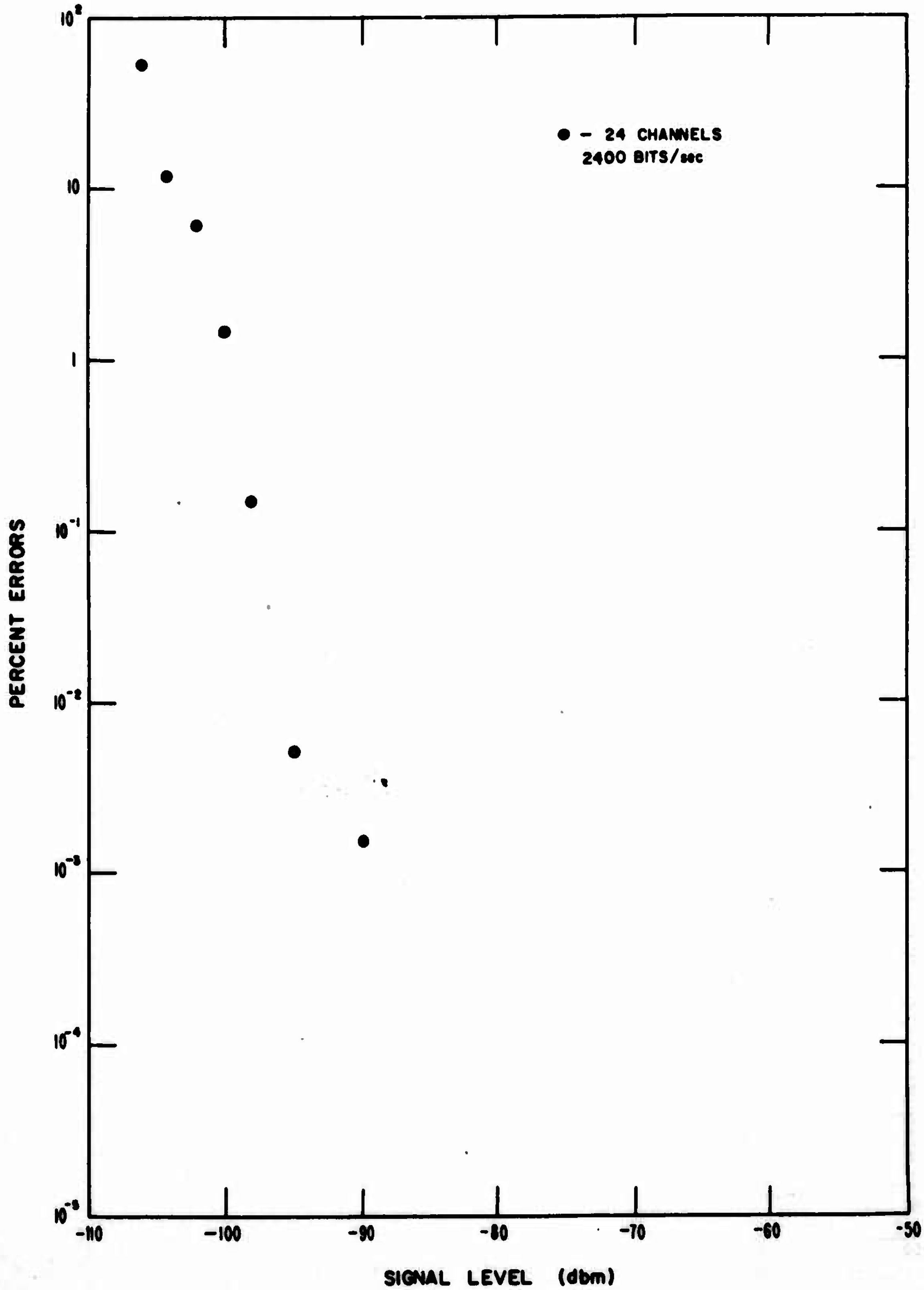


Figure 82. Back-to-back Δ Mod. GSC-4.

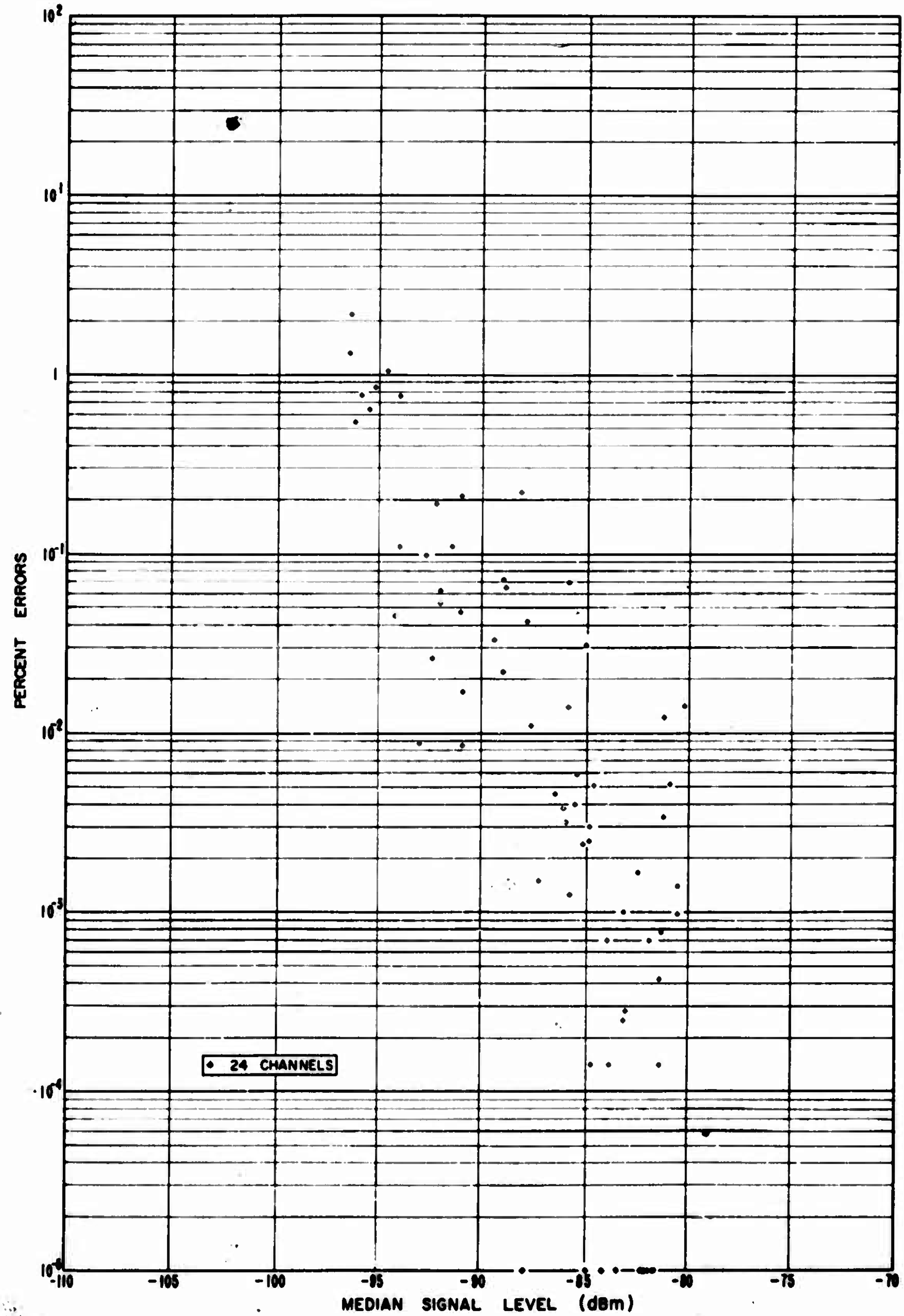


Figure 83. Frederick FDM 2400 Bits/sec.

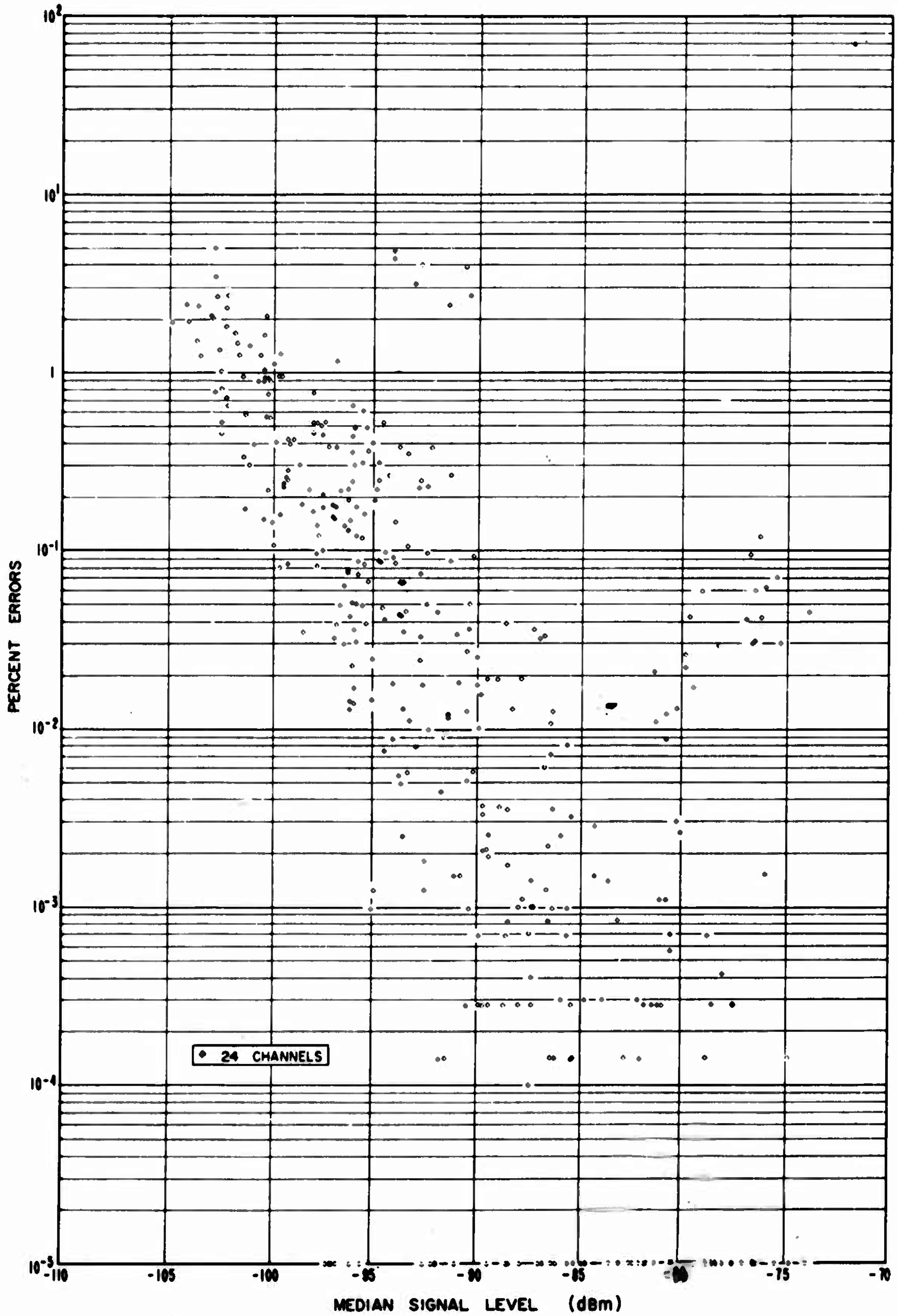


Figure 84. GSC-4 FDM 2400 Bits/sec.

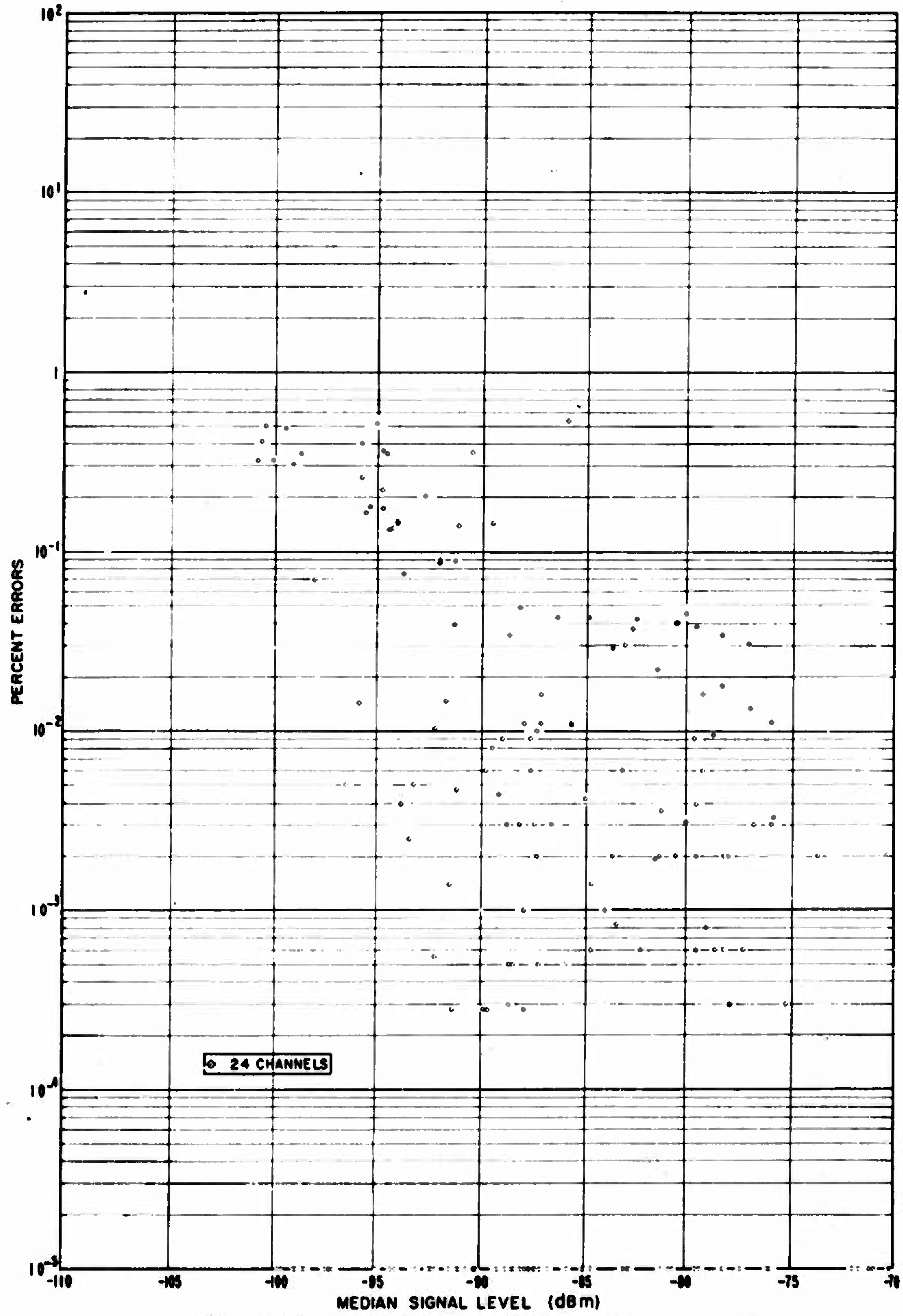


Figure 85. GSC-4 FDM 1200 Bits/sec.

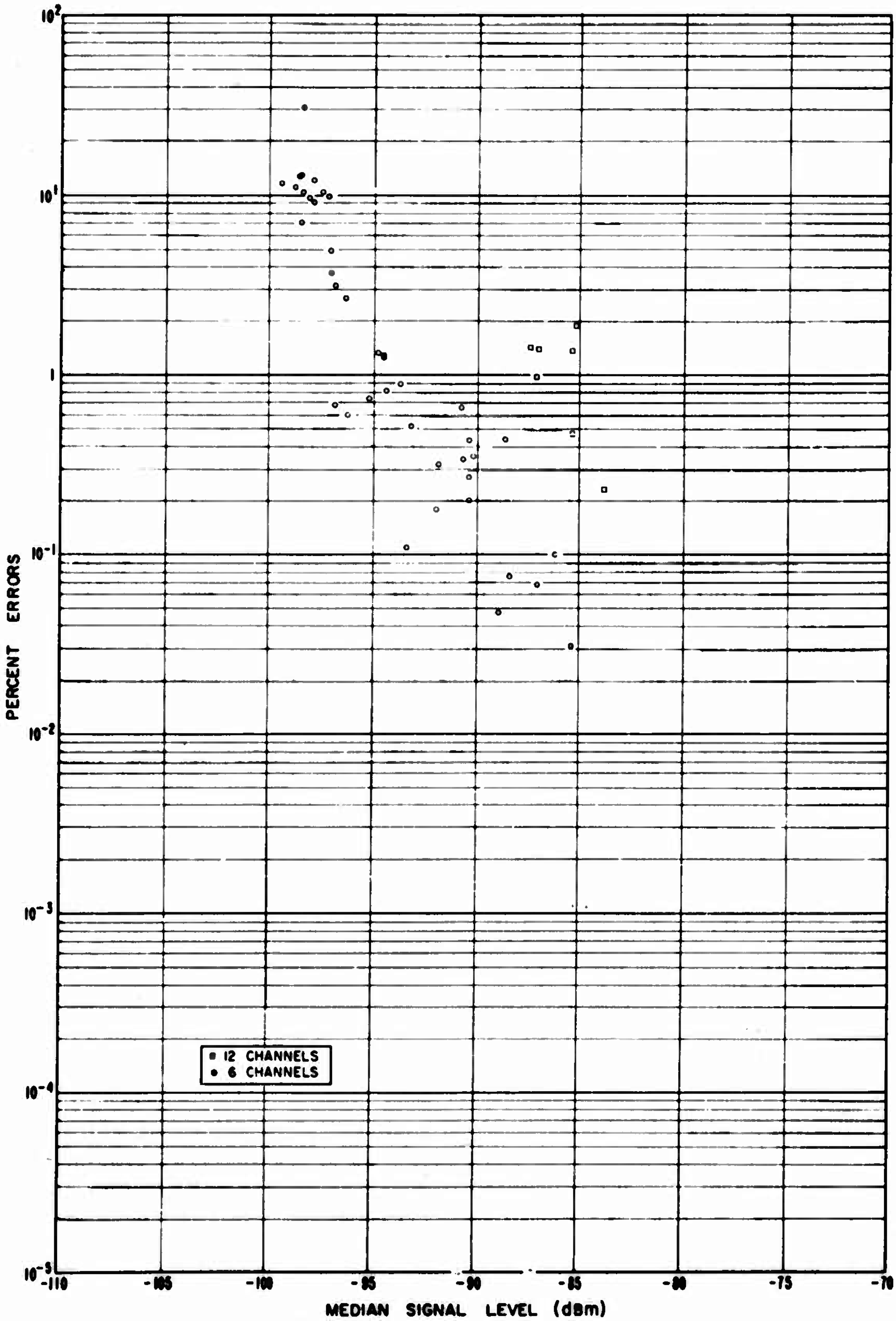


Figure 86. Frederick PCM 2400 Bits/sec.

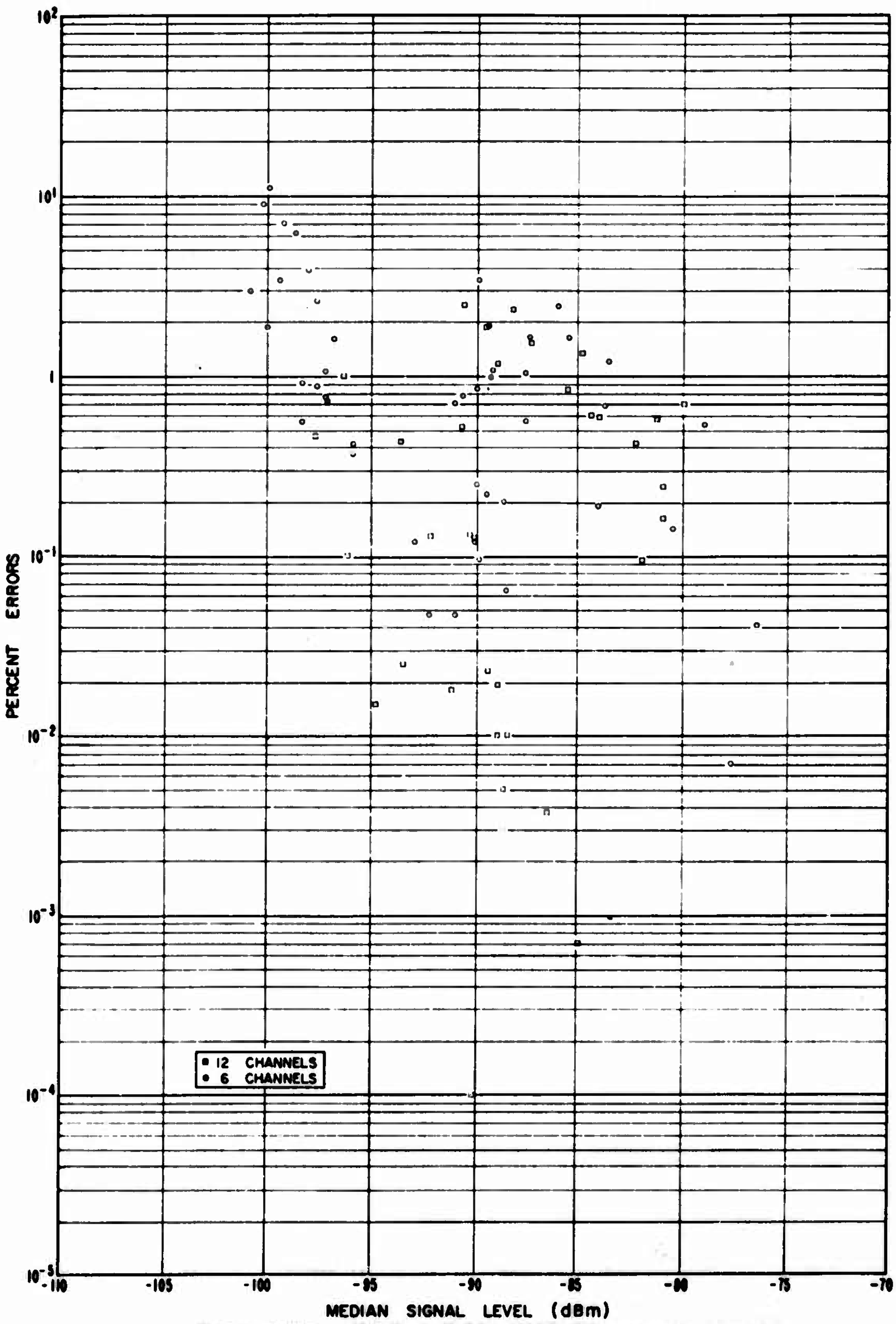


Figure 87. GSC-4 PCM 2400 Bits/sec.

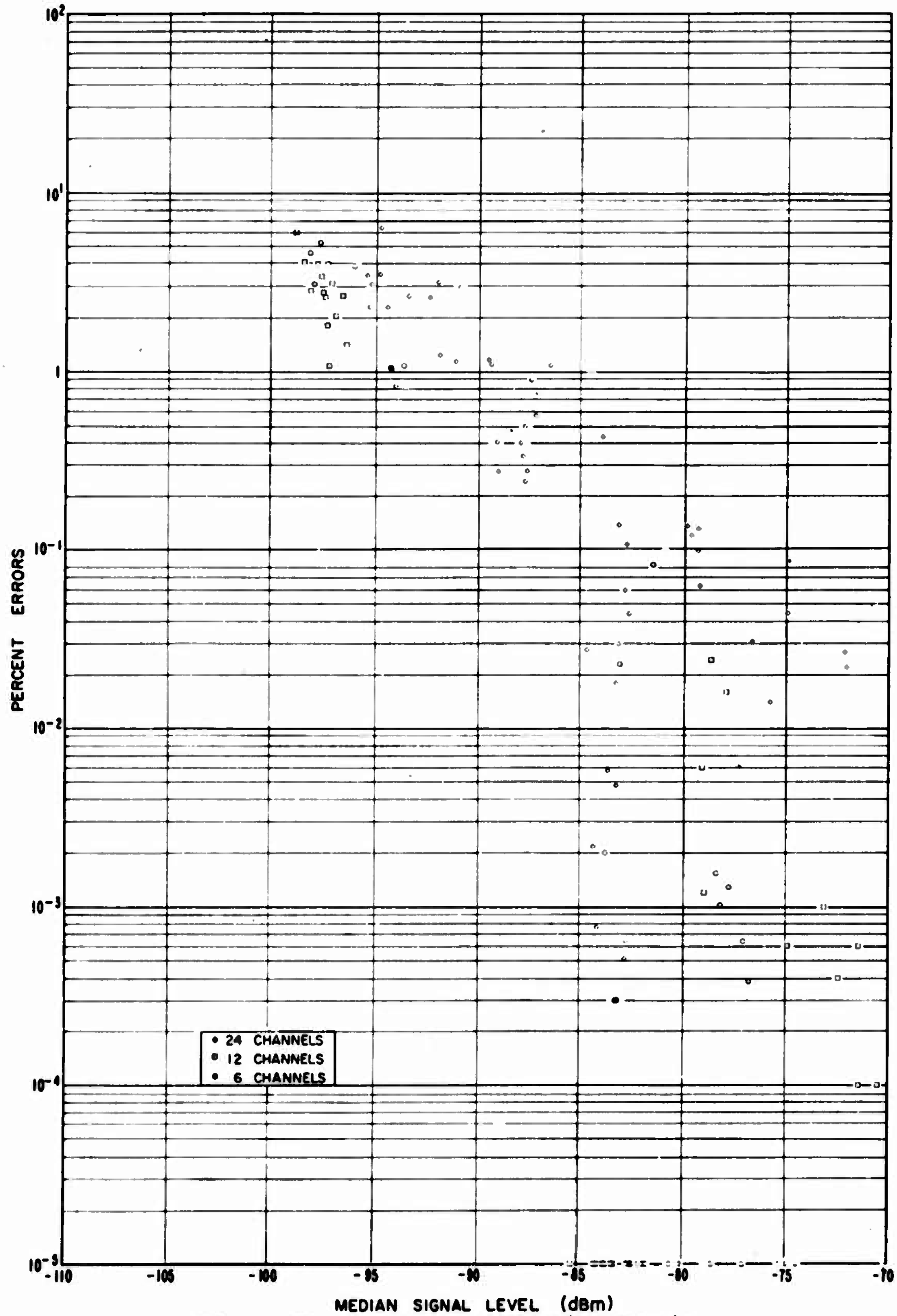


Figure 88. Frederick PPM 2604 Bits/sec.

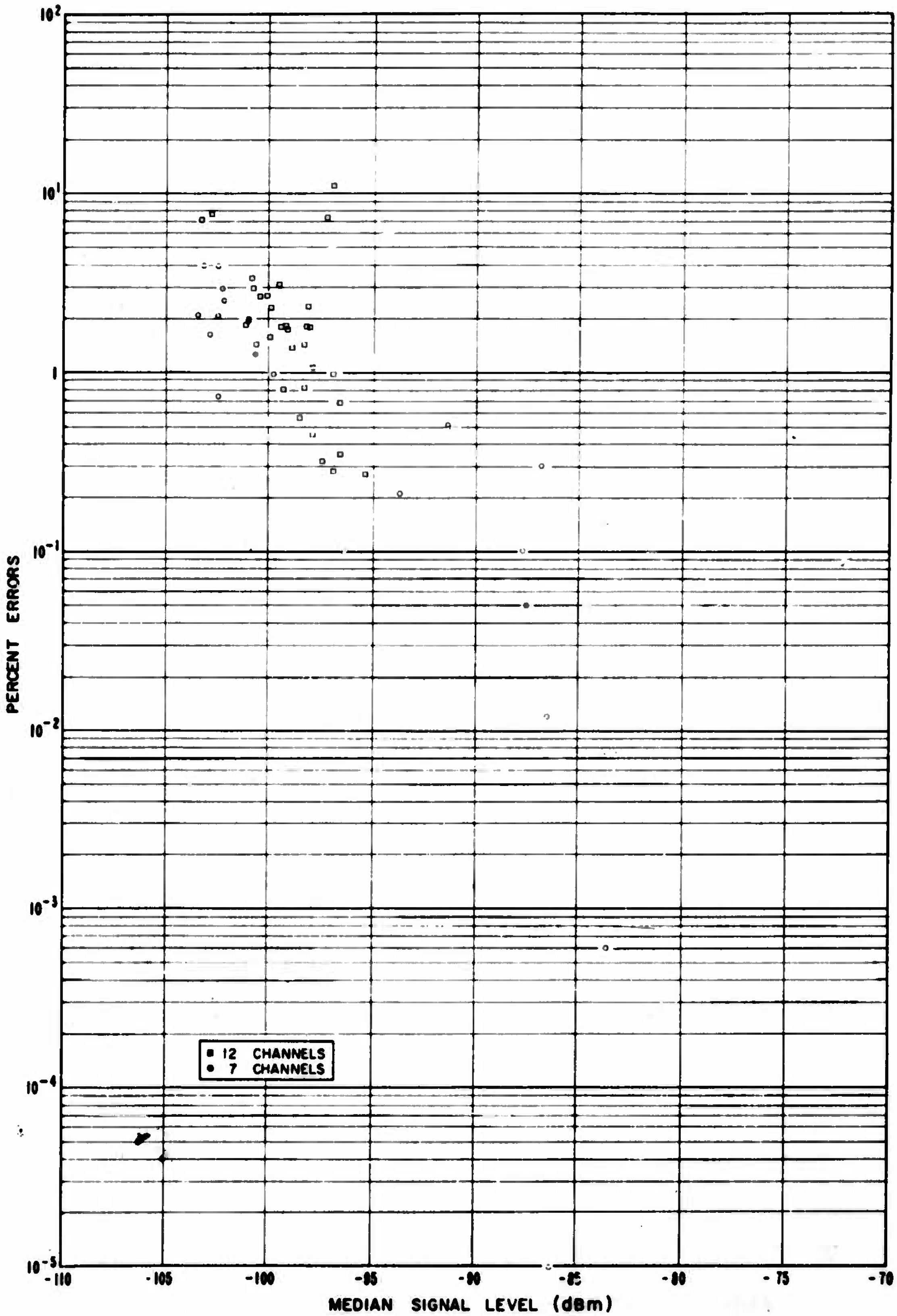


Figure 89. Frederick PPM 2604 Bits/sec.

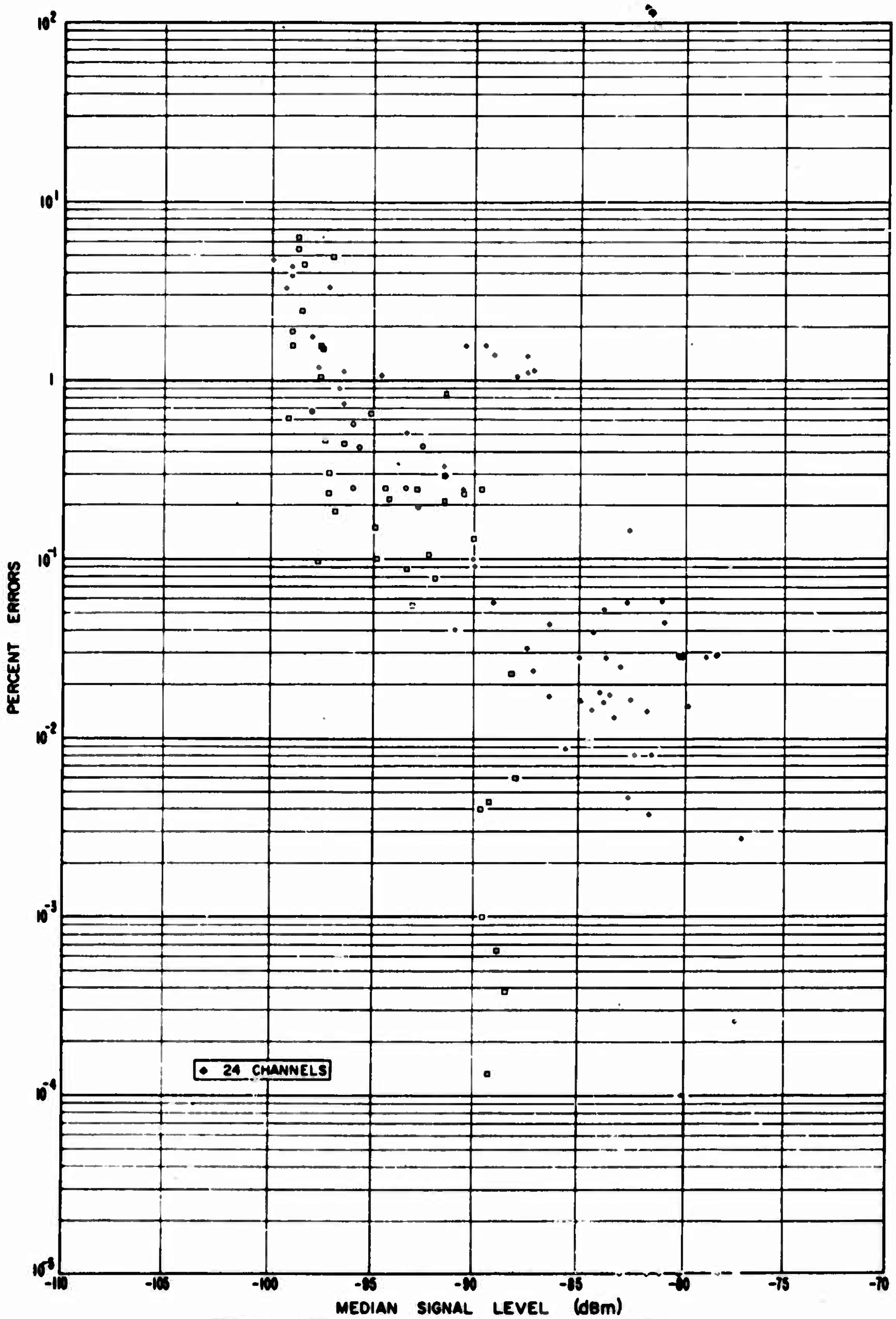


Figure 90. Frederick PPM 2604 Bits/sec.

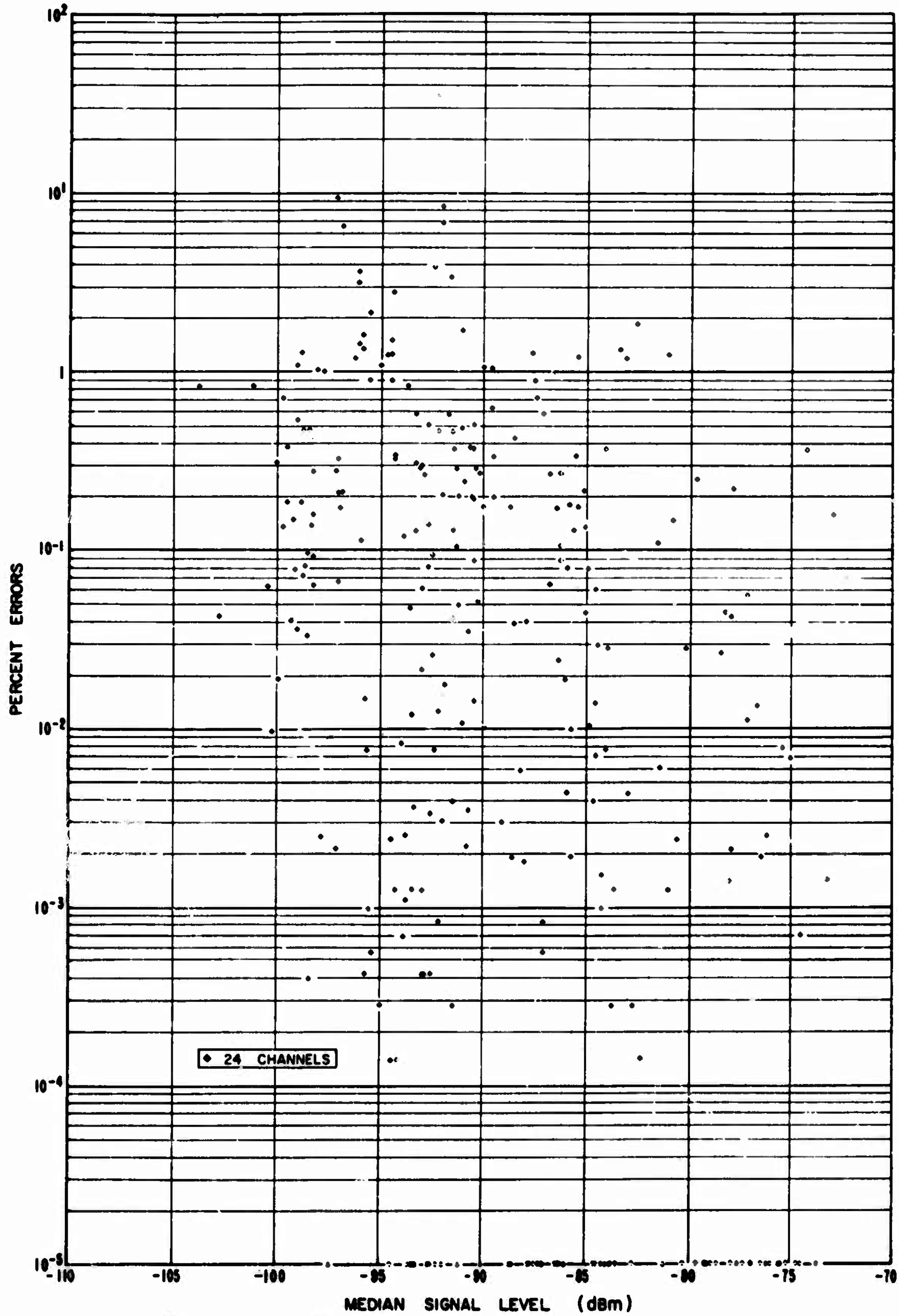


Figure 91. Frederick Δ modulated 2400 Bits/sec.

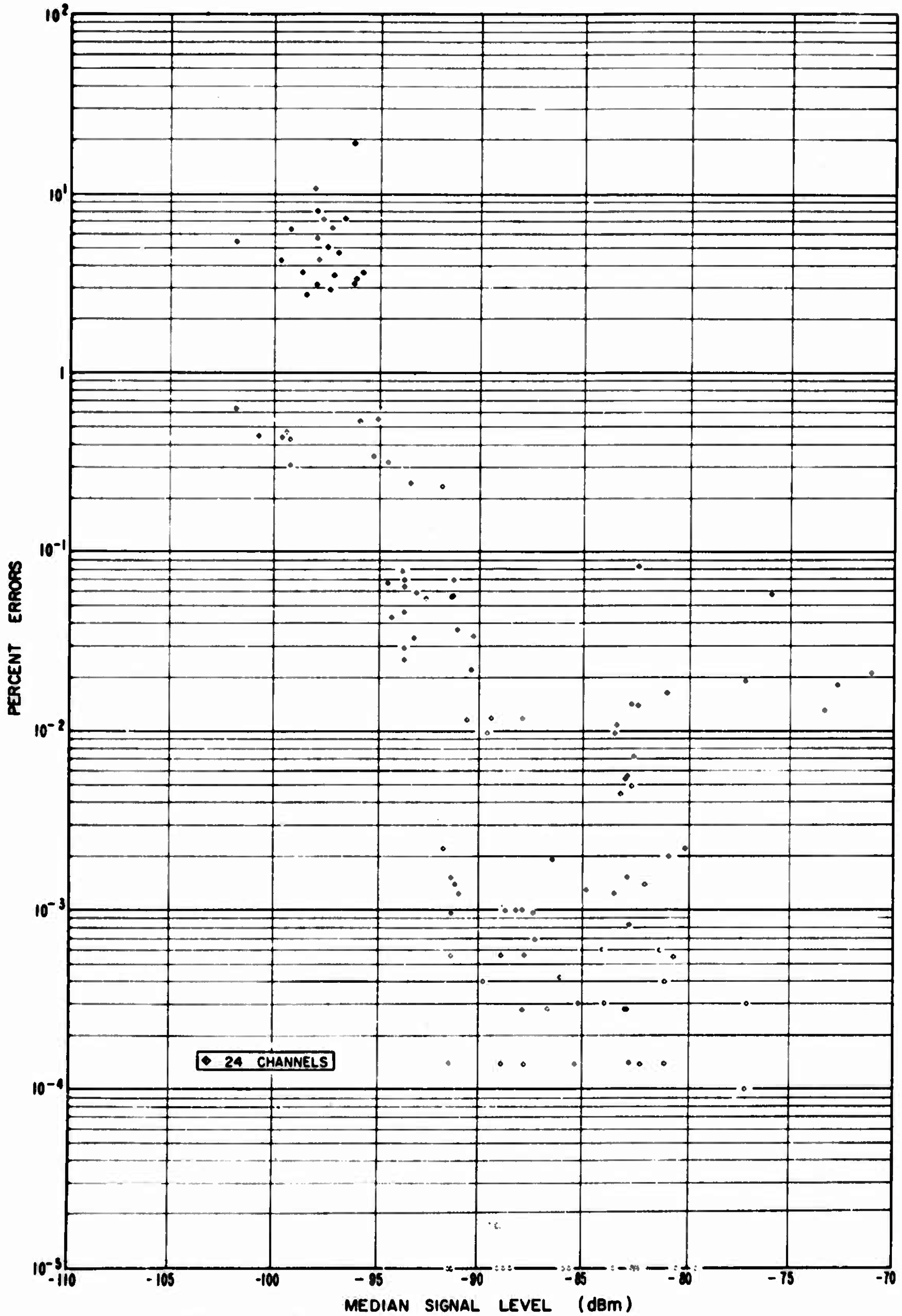


Figure 92. GSC-4 Δ modulated 2400 Bits/sec.

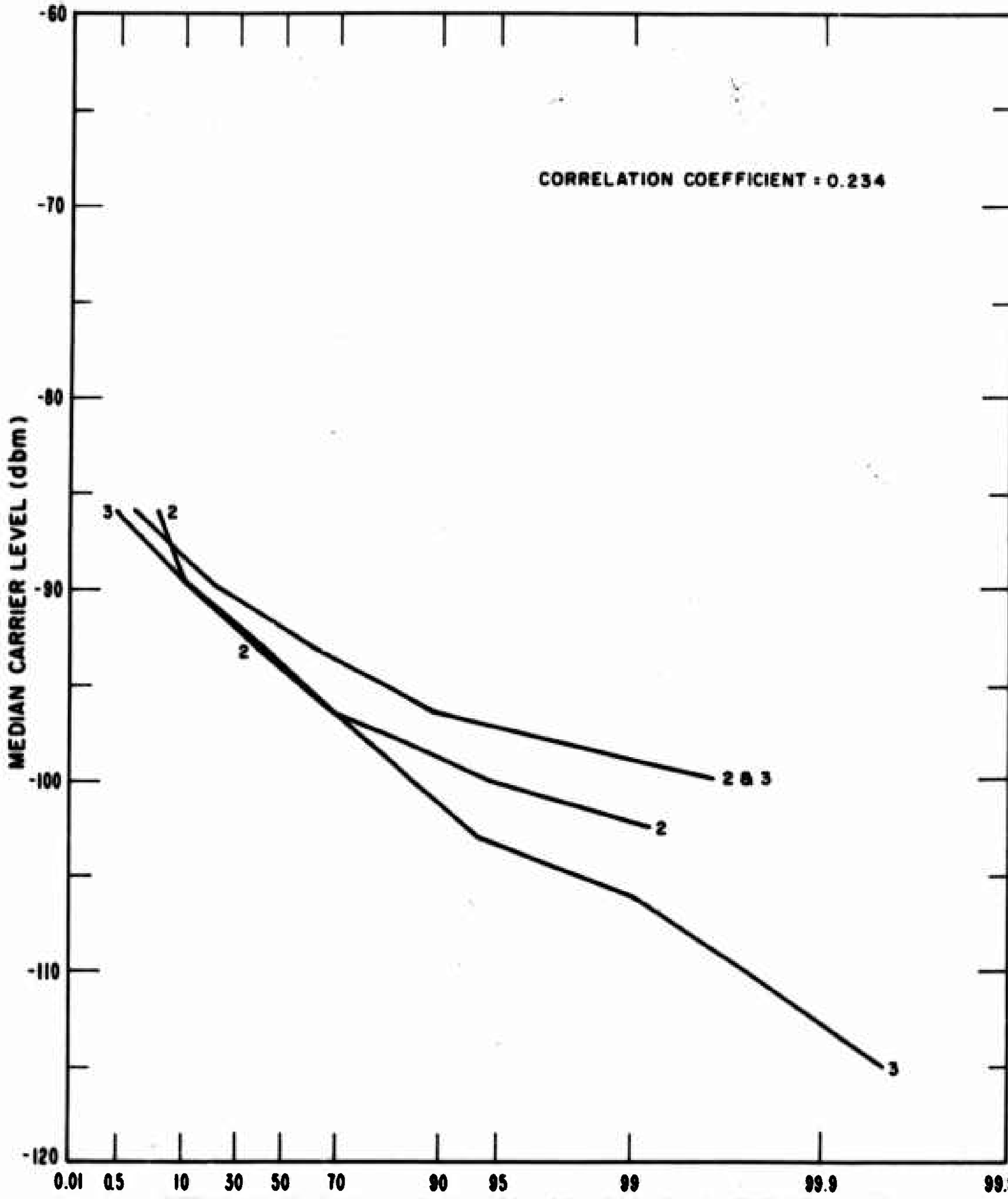


Figure 93. Sample distributions and combined distributions, Run 36, Time 1425-1430, FDM.

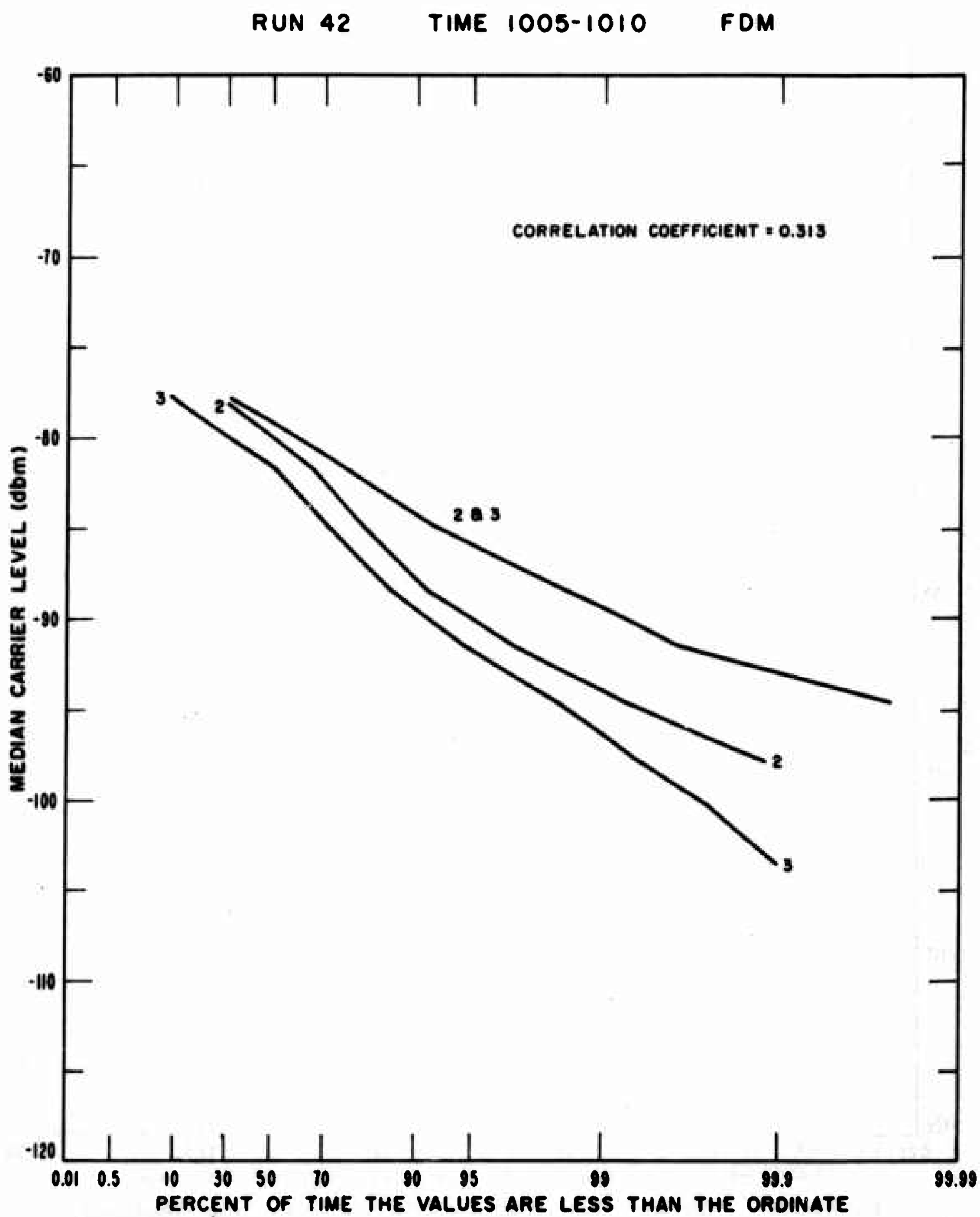


Figure 94. Sample distributions and combined distributions, Run 42, Time 1005-1010, FDM.

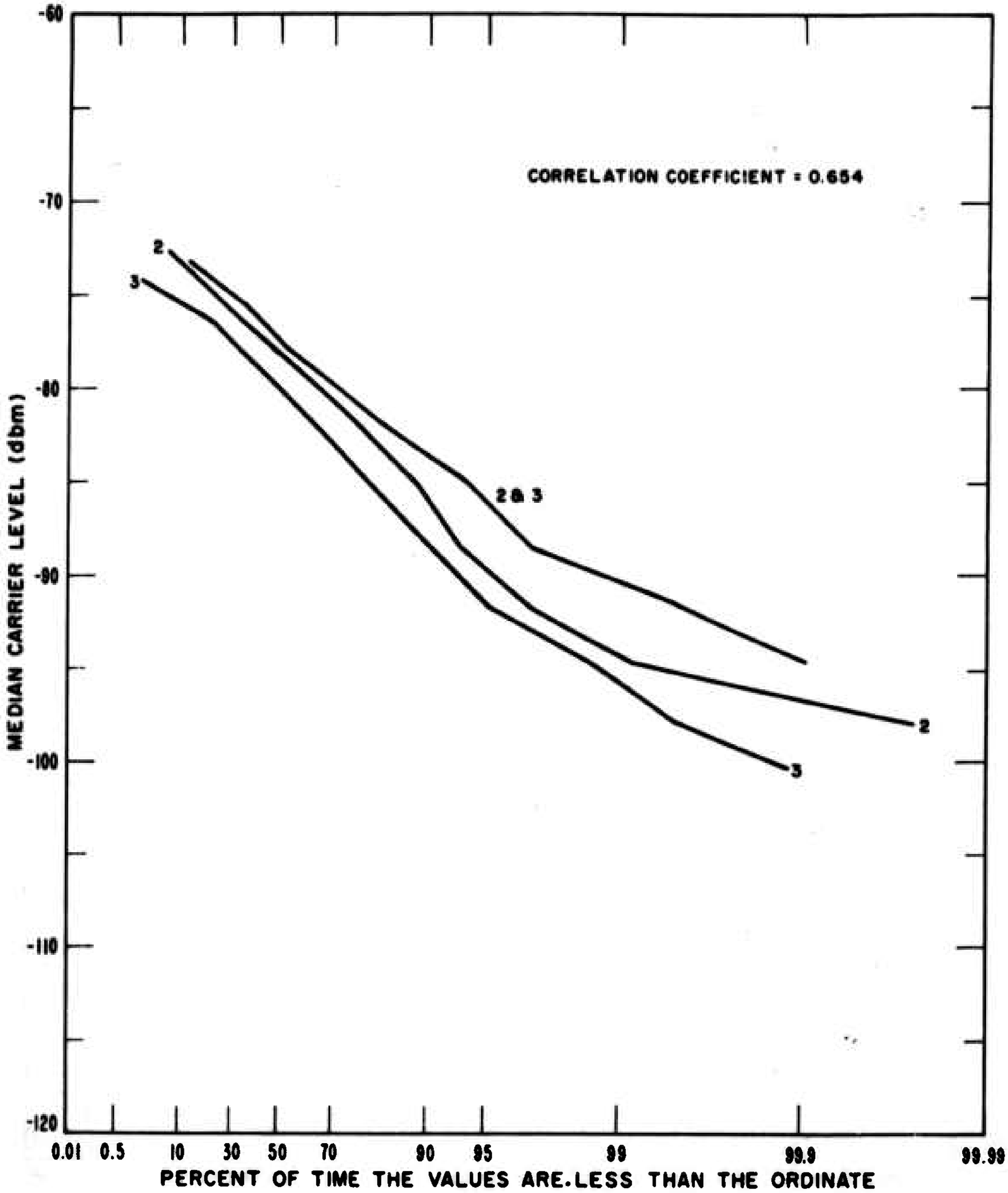


Figure 95. Sample distributions and combined distributions, Run 42, Time 1025-1030, FDM.

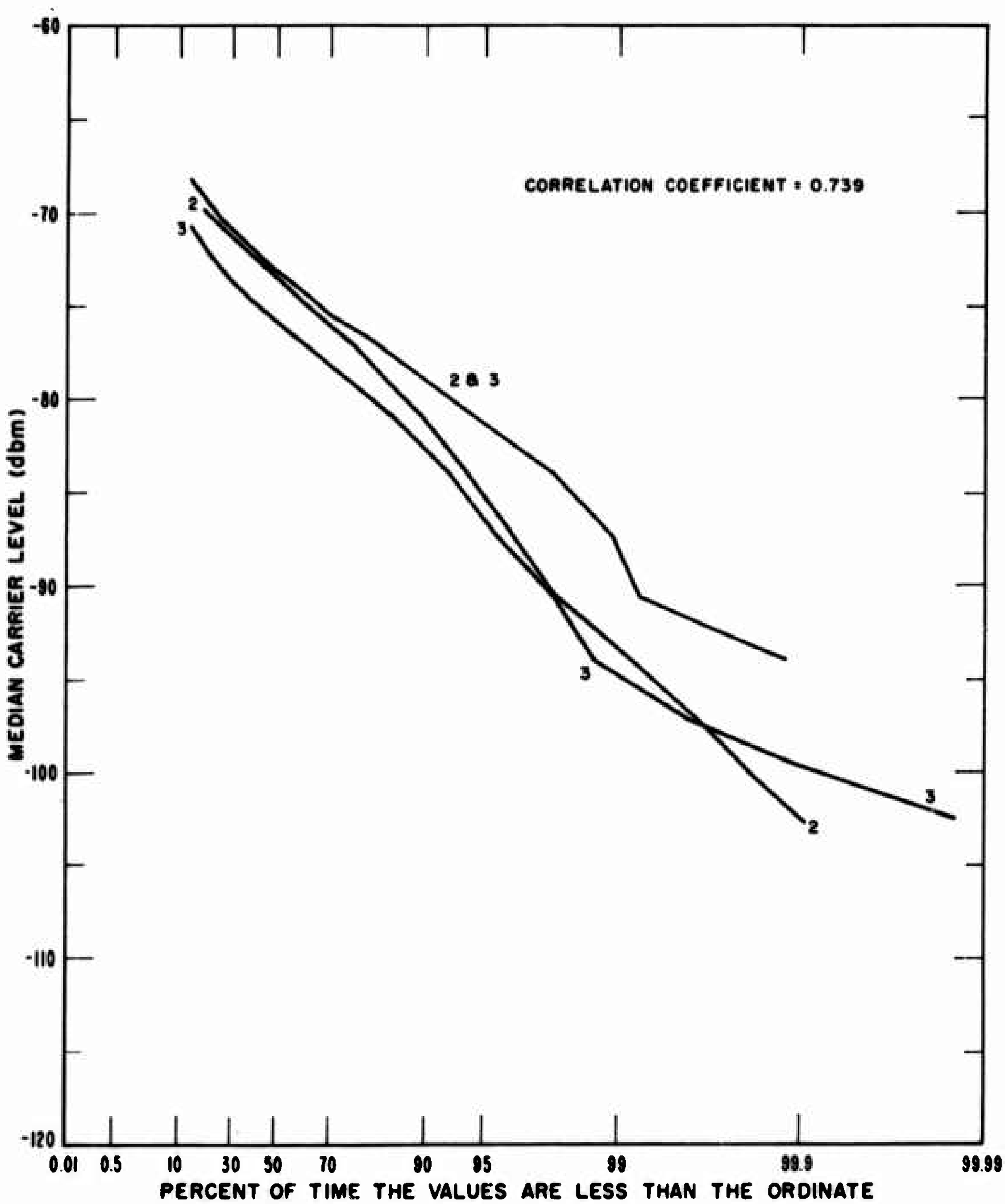


Figure 96. Sample distributions and combined distributions, Run 44, Time 1205-1210, FDM.

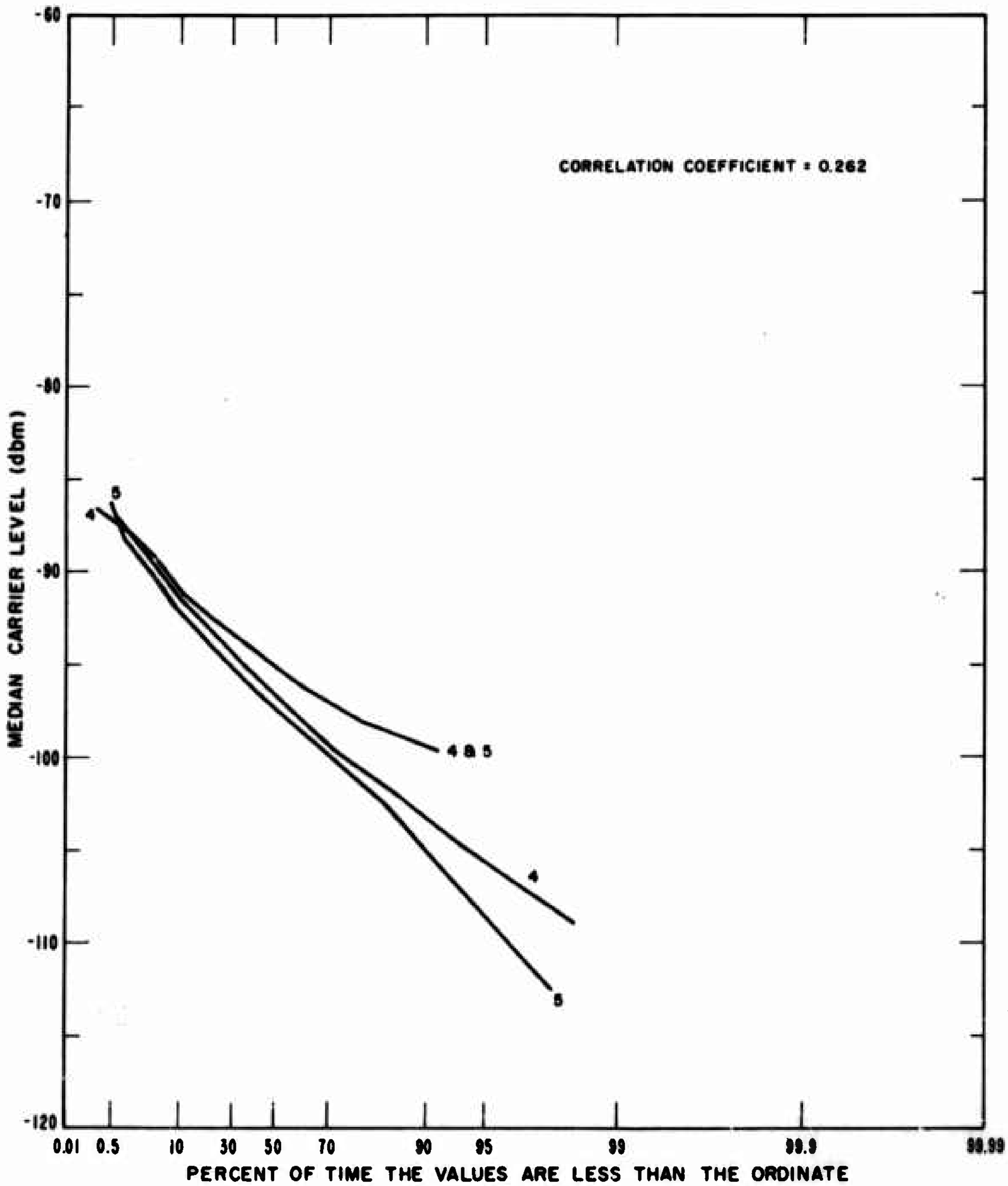


Figure 97. Sample distributions and combined distributions, Run 127, Time 1645-1650, FDM.

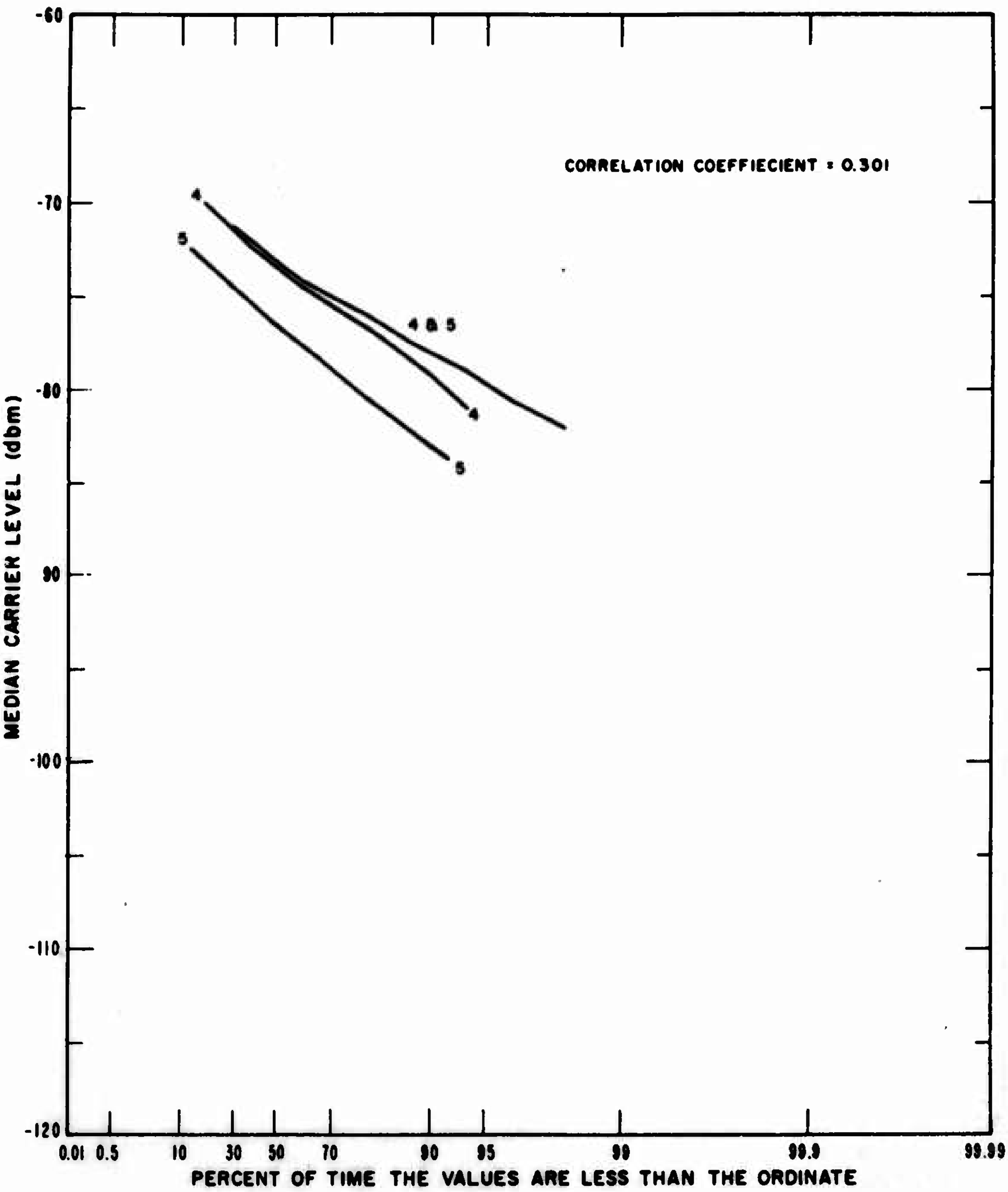


Figure 98. Sample distributions and combined distributions, Run 134, Time 1645-1650, FDM.

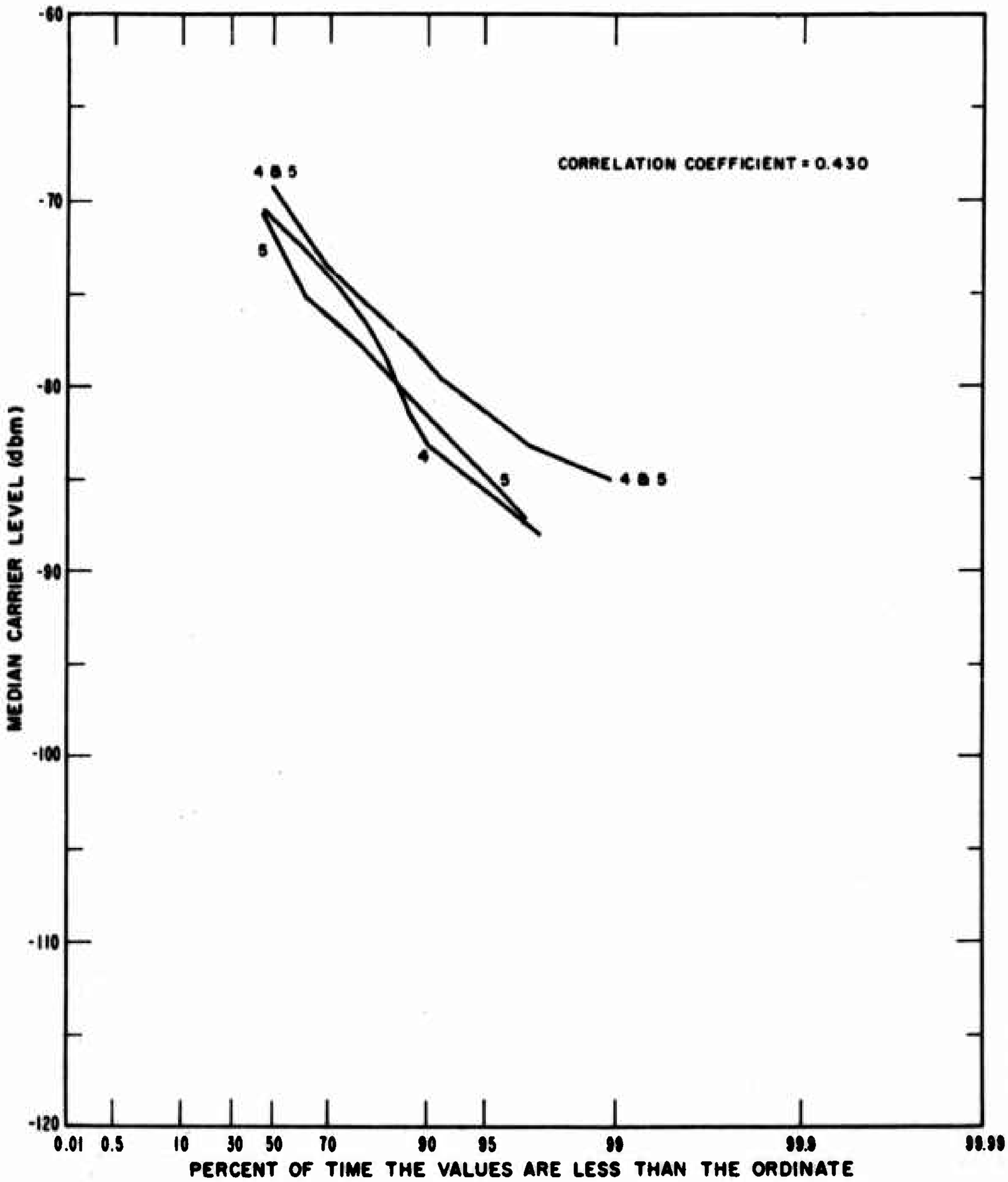


Figure 99. Sample distributions and combined distributions, Run 142, Time 1300-1305, FDM.

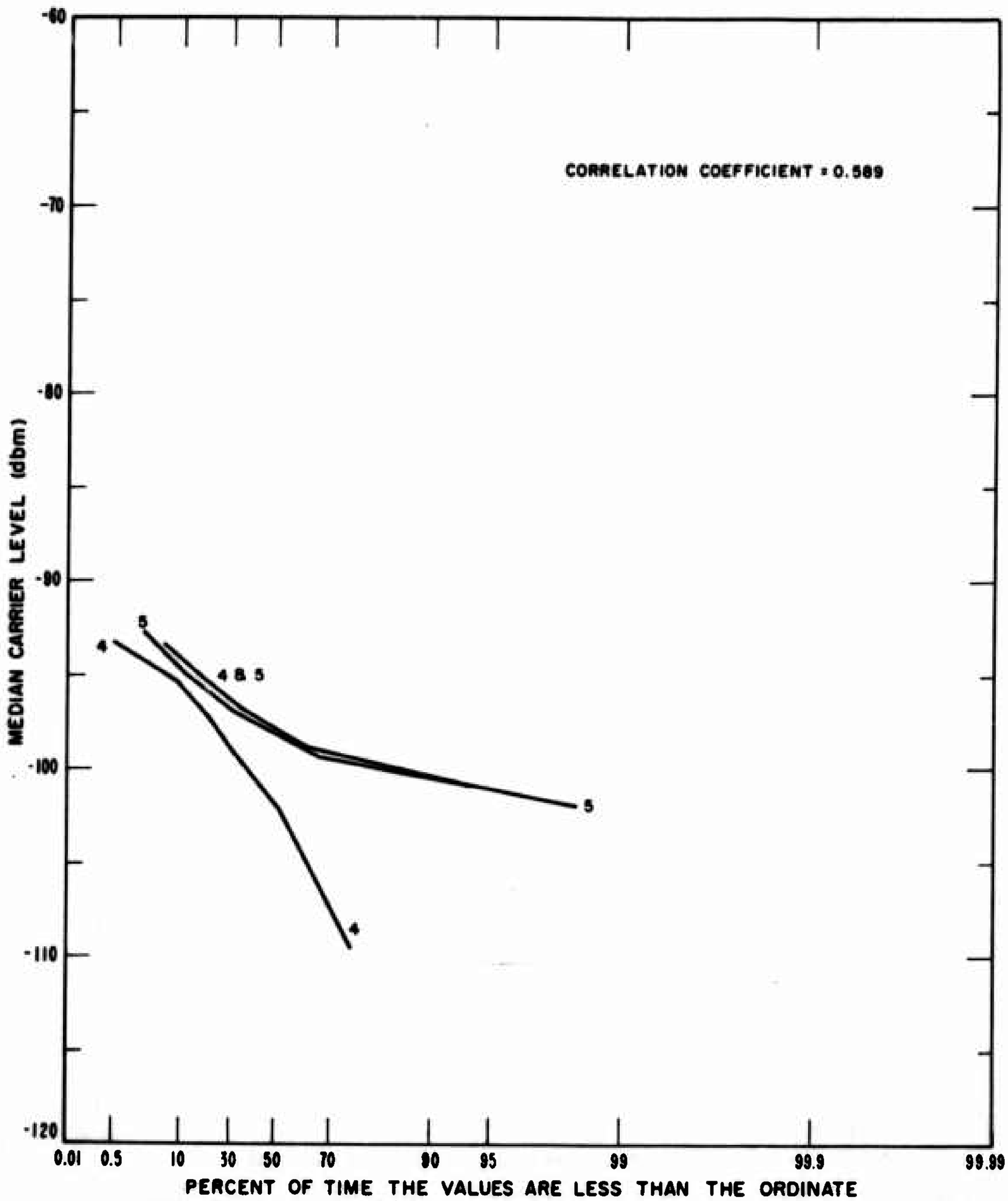


Figure 100. Sample distributions and combined distributions, Run 164, Time 1305-1310, FDM.

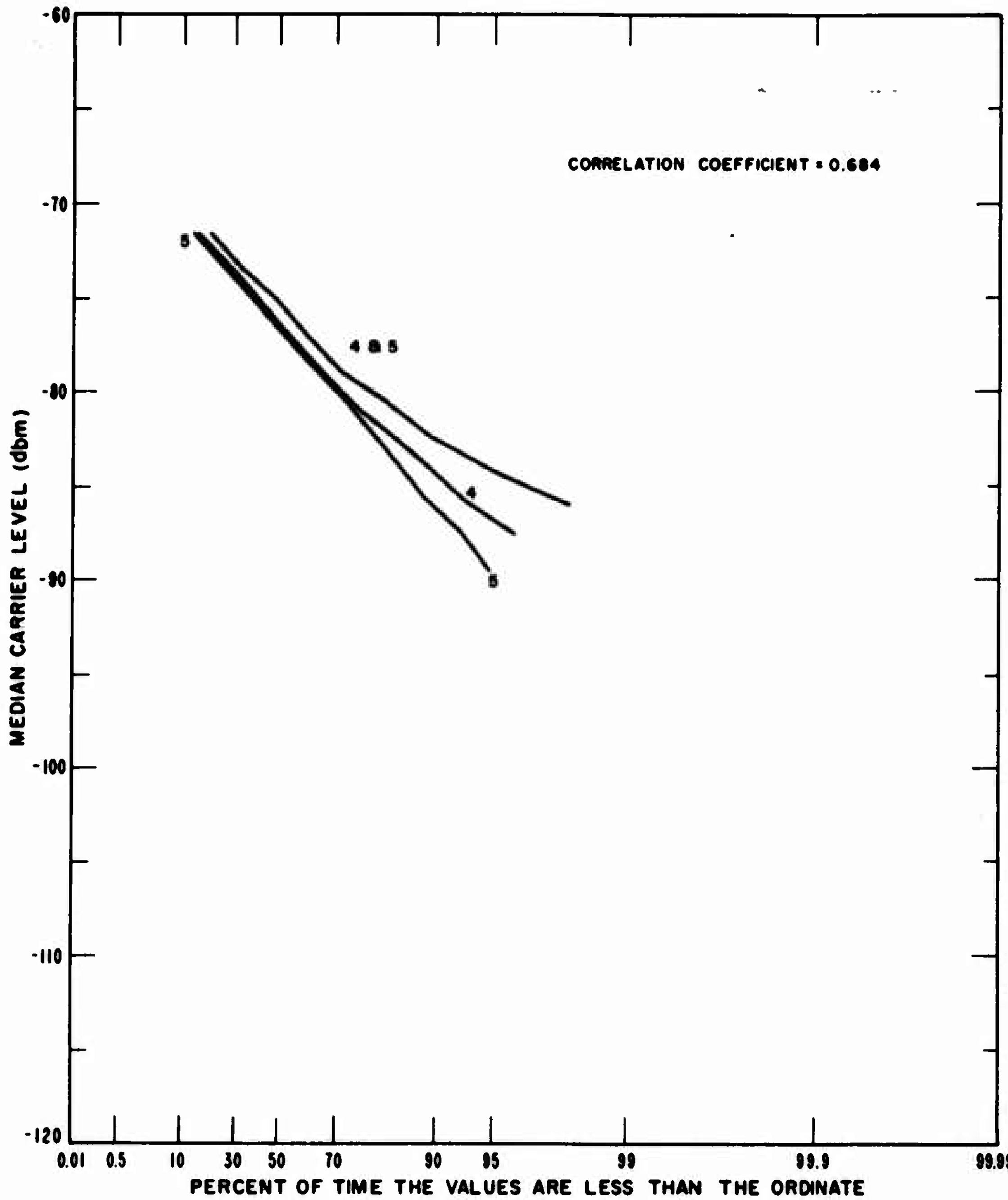


Figure 101. Sample distributions and combined distributions, Run 215, Time 1320-1325, FDM.

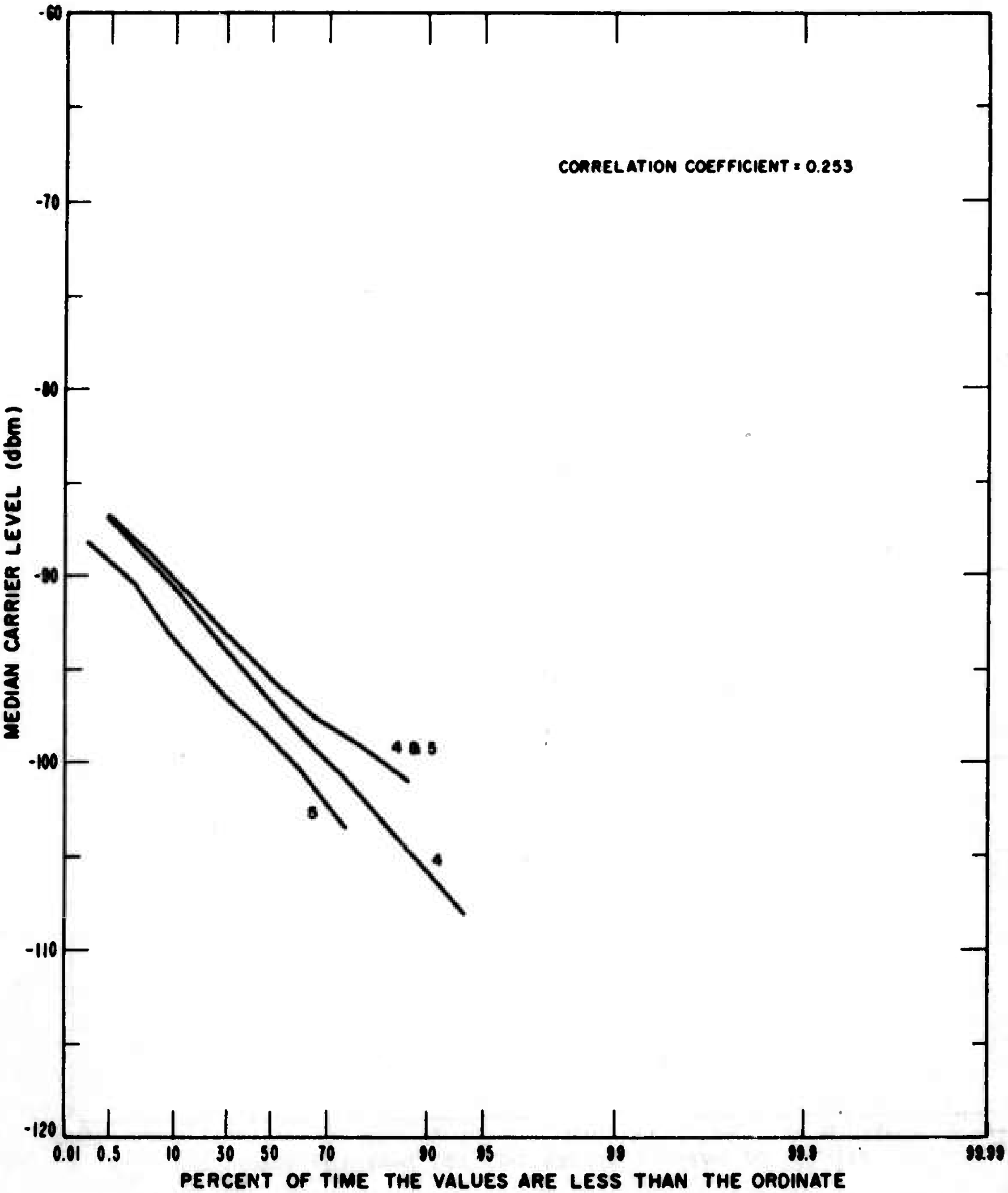


Figure 102. Sample distributions and combined distributions, Run 233, Time 1540-1545, FDM.

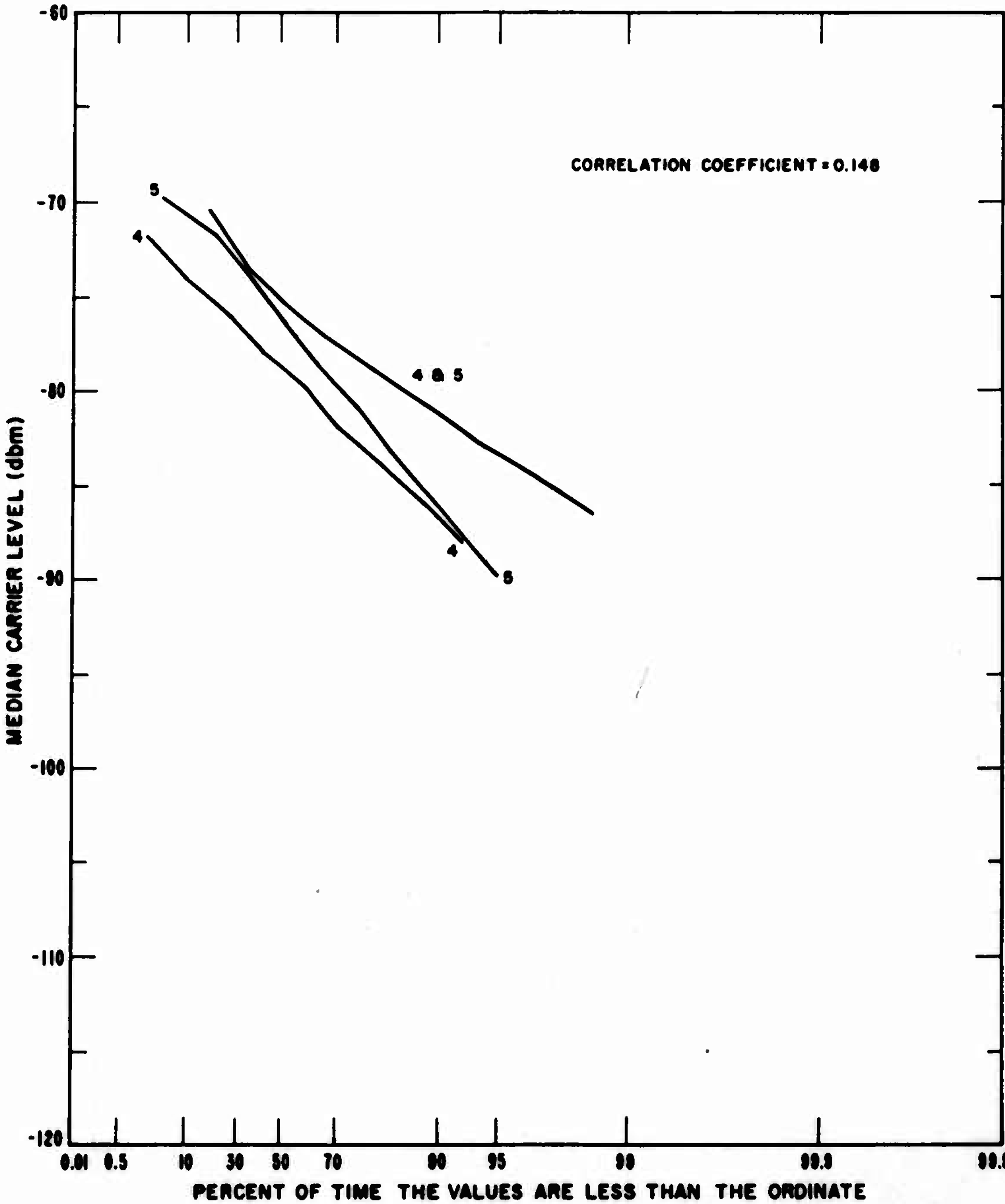


Figure 103. Sample distributions and combined distributions, Run 256, Time 1310-1315, FDM

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13. ABSTRACT

This report describes the work performed under Contract AF 30(602)-3446. Its purpose was to evaluate the performance of three types of contractor furnished digital modulation equipment, using simultaneous data from an FM-FDM system as a standard.

The tests covering a period from November 1964 through May 1965 were conducted on an over-water path between East Island, Puerto Rico and Grand Turk Island, BWI.

The standard FM-FDM system technique referenced was the Radio Set AN/MRC-98, a transportable tropospheric scatter radio set operating in the 755-985 MHz range, with an output r.f. power capability of 10 KW.

The digital techniques were variations of Pulse Code Modulation, Pulse Position Modulation, and Delta Modulation schemes.

A description of test instrumentation configurations and data collection procedures is presented. Test results are discussed and presented in tabular and graphical form.

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14 KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
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